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Project Preparation and Approval

Prepared By _____
 Ted V. Fitzgerald, PE Colorado 14917
 Trout Unlimited's Home Rivers Project Manager

Approved By _____
 Bob Bonar, Snowbird Corp General Manager
 Private Land Owner's Representative

Approved By _____
 Pete Karp, Forest Supervisor
 Uinta National Forest

Approved By _____
 Pete Stevenson, On-Scene Coordinator
 Environmental Protection Agency

Project Area

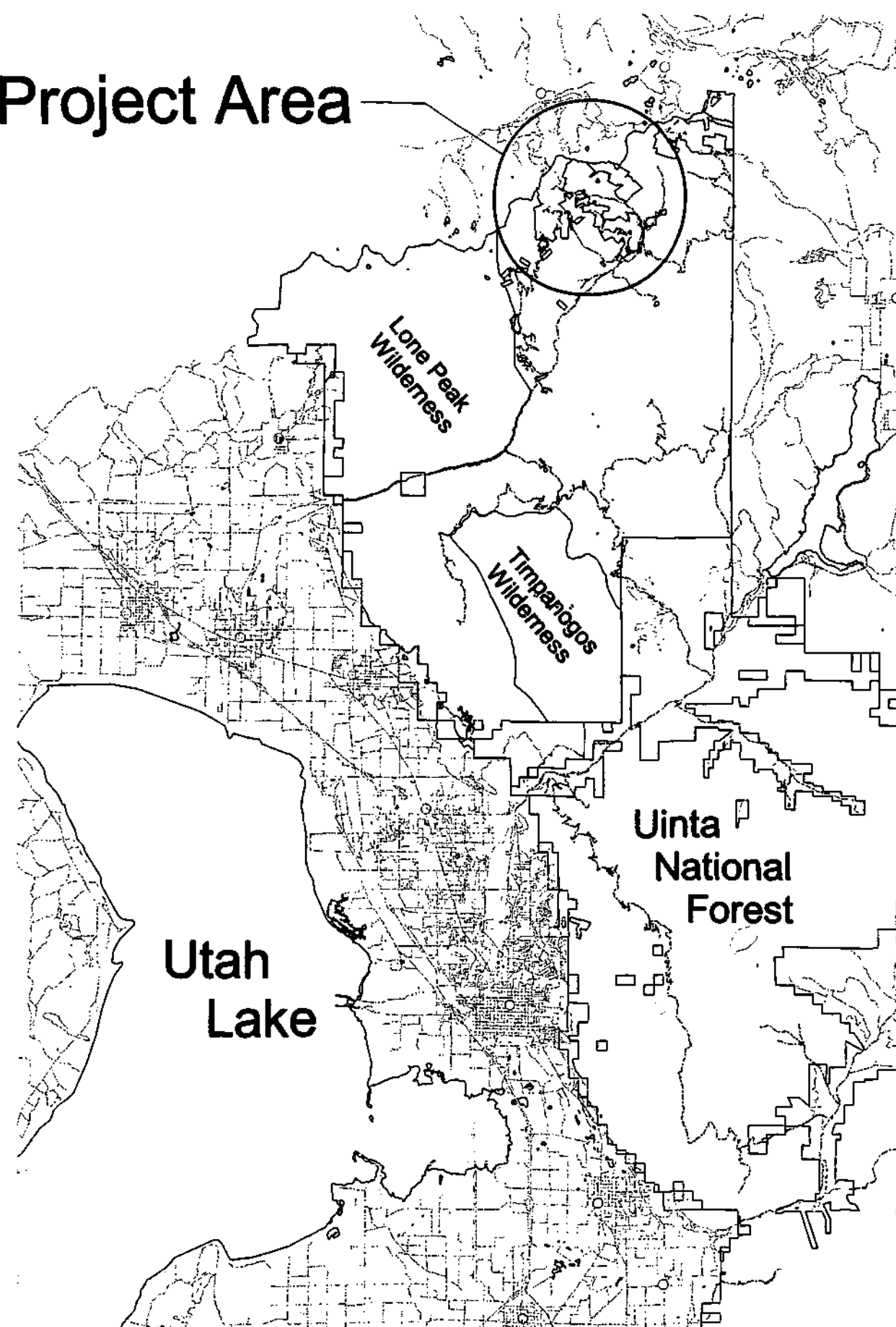
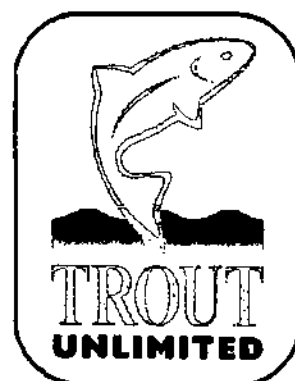


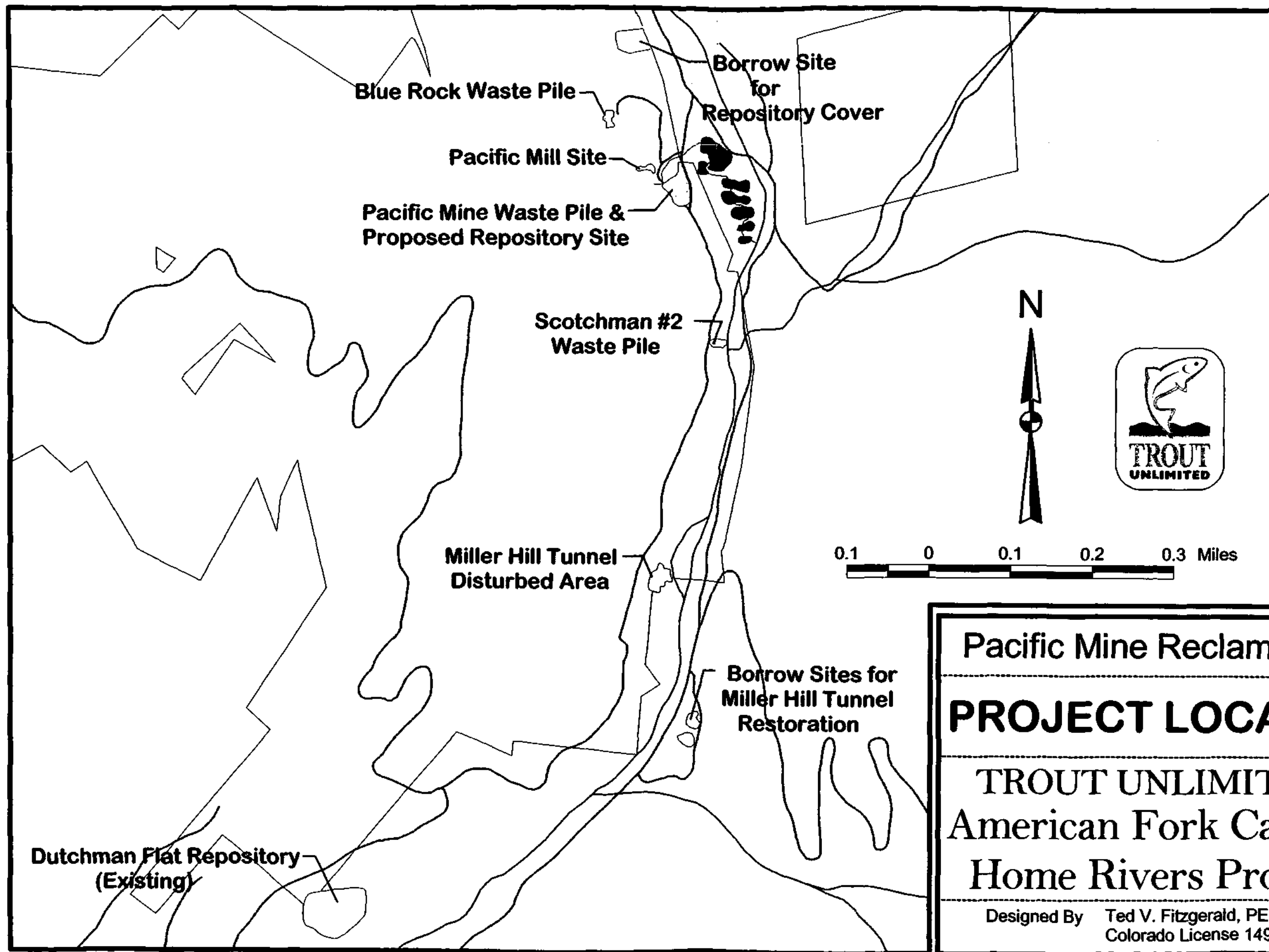
State of Utah

PACIFIC MINE RECLAMATION PROJECT

 AMERICAN FORK CANYON

Sponsored By





Project Description

This project includes the excavation and disposal of mining wastes at Pacific mine and mill sites, Scotchman #2 mine, Blue Rock mine, and reclamation of the disturbed area at the Miller Hill Tunnel site. The waste materials will be deposited in a Repository to be constructed at the Pacific mine waste rock pile location. The Repository will be capped with native soils.

Project Location

The project is located in the North Fork of American Fork Canyon. Travel Utah 92 from American Fork City thru Timpanogos Cave National Monument to an intersection with FR 085 at the North Fork. The project is 8 miles up the North Fork.

FR 085 is paved to Tibble Fork Reservoir, improved and graveled for the next two miles. The last three miles is unimproved dirt road impassable to semi truck/trailers.

Road Requirements

The access road for this project is under the jurisdiction of the Forest Service. Any work done on the road must be approved by the FS and done to meet FS standards.

The Miller Hill access road at Pacific mine (private property) is to be relocated to the toe of the Repository. Guardrails are to be installed on both sides of the new road segment to prevent vehicle access to the reclaimed lands and the Repository.

The road to the Blue Rock mine requires widening to allow use by haul trucks during removal of those wastes. After the waste pile is removed the road to Blue Rock will be obliterated and made impassable.



Pacific Mine Reclamation Project	
PROJECT LOCATION MAP	
TROUT UNLIMITED American Fork Canyon Home Rivers Project	
Designed By Ted V. Fitzgerald, PE Colorado License 14917	Sheet 2 of 20

STAGE 1 - 2005 CONSTRUCTION

Initiate Pacific Reclamation Project

Summary of Quantities

Item	Description	Unit of Measurement	Method of Measurement	Quantity
20000	Clearing, borrow area	Lump Sum	Lump Sum Quantity L300	1
20000a	Clearing, borrow area	CT	Actual Quantity Q30	200
20000b	Strip and stockpile 3 inches of topsoil from borrow area	CT	Design Quantity Q30	200
20400	Stream/hay bales	Each	AS	20
20407	Silt Fence	Feet	AS	200
30000	Reconditioning of roadbed, Blue Rock Mine Access	Feet	AS	600
60000	Rehabilitation, 2005	LS	L30	1
60000a	18 inch culvert	Feet	AS	22
60000b	Special pipe connection	LS	L30	1
60000c	Remove and re-install guardrail	Feet	AS	200
60000d	Guardrail system CRT, type IV, Class A (weathering steel)	Feet	AS	400
60000e	Terminal section, flared	Each	AS	0
60700	Fence, barbed wire, 3 strand	Feet	AS	400
63000a	Sign, closure	Each	AS	2
63000b	Sign, interpretive	Each	AS	2

■ Purchase and stockpile for installation in 2006

STAGE 3 - 2006 CONSTRUCTION

Cap Miller Hill Tunnel Disturbed Area

Summary of Quantities

Item	Description	Unit of Measurement	Method of Measurement	Quantity
20000	Rock barrier, remove and replace	LS	L30	1
20000d	Clearing, Miller Hill Tunnel Cap	CT	AS	600
20000e	Temporary stream crossing	LS	L30	1
20400	Stream/hay bales	Each	AS	20
20407	Silt Fence	Feet	AS	100
30000	Recondition haul roads	Feet	AS	900
60000a	Seeding, broadcast method w/ mulch and fertilizer	Acre	AS	0.70
63000a	Install sign	Each	AS	1

Road Reconditioning Summary

Location	Length (ft)	Ave. Width (ft)	Area (acres)
Blue Rock Mine	600	14	0.19
Borrow to Pacific	500	16	0.18
Miller Hill Borrow	900	14	0.29
TOTAL	1,620 feet		0.66

Road Obliteration Summary

Location	Length (ft)	Ave. Width (ft)	Area (acres)
Blue Rock Mine	350	15	0.12

STAGE 2 - 2006 CONSTRUCTION

Complete Pacific Reclamation Project

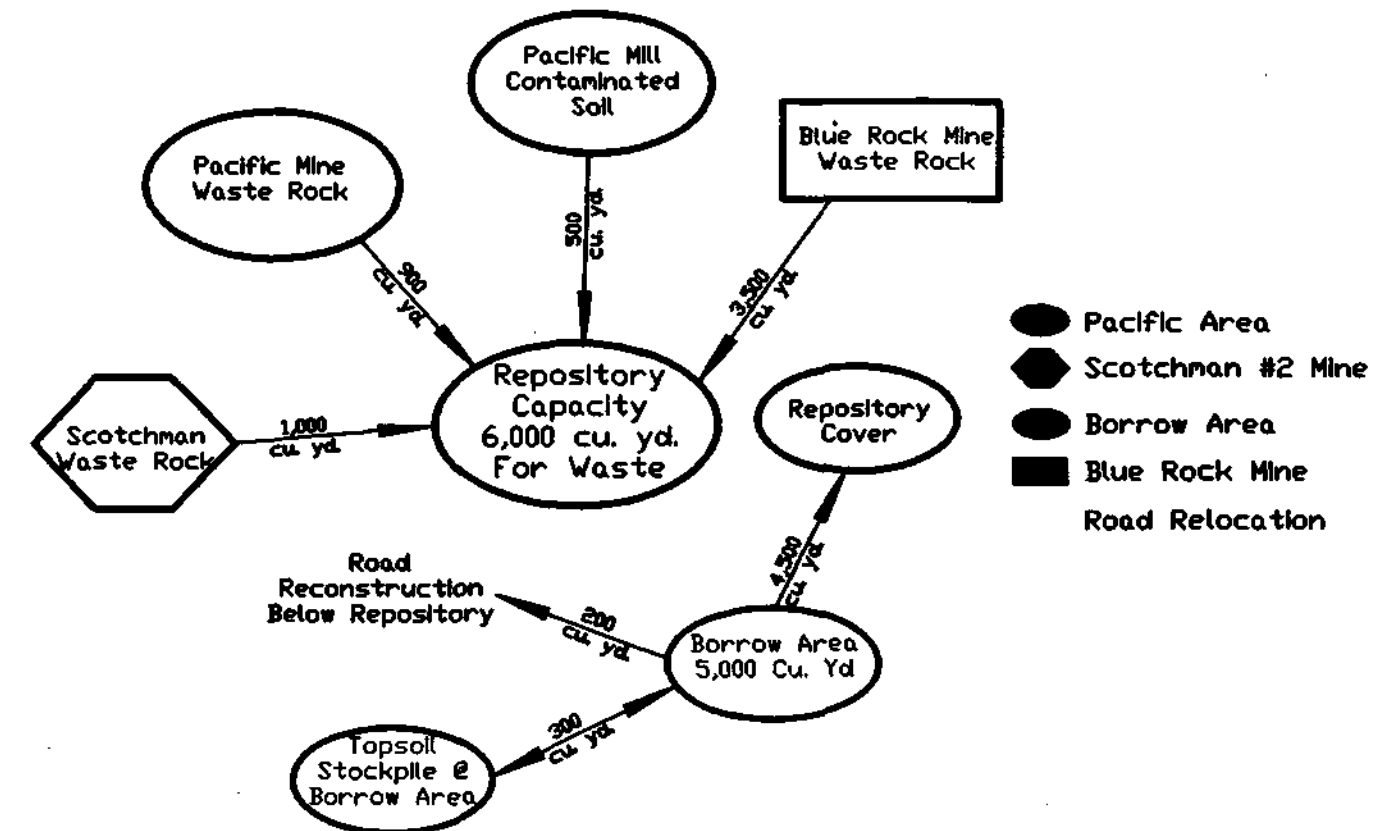
Summary of Quantities

Item	Description	Unit of Measurement	Method of Measurement	Quantity
20000	Clearing, Repository	Lump Sum	Lump Sum Quantity L300	1
20000a	Remove and salvage barbed wire fence	LS	L30	1
20000b	Excavation, Pacific Mill	Cubic Yard (CY)	AS	900
20000c	Excavation, Pacific Mine	CT	AS	900
20000d	Excavation, Blue Rock Mine	CT	AS	2,500
20000e	Excavation, Scotchman #2 Mine	CT	AS	1,000
20000f	Excavation, Repository Cover	CT	AS	4,500
20000g	Interceptor ditch	Feet	AS	200
20000h	Regrade borrow area and borrow stockpile areas	LS	L30	1
20400	Stream/hay bales	Each	AS	20
20407	Silt Fence	Feet	AS	20
20000i	Gravel/rock road, Blue Rock Mine	Feet	AS	200
20000j	Composite liner, Repository	Square Yards SY	AS	900
20000k	Place riprap, class 7, method 3 (Interceptor ditch)	CT	AS	200
20000l	Recondition haul road North Fork	Feet	AS	200
60000	Rehabilitation, 2006	LS	L30	1
60000a	Adjust ground water monitoring well, Pacific	Each	AS	1
60000b	Install guardrail, Repository	Feet	AS	400
60000c	Place topsoil, borrow area	CT	AS	200
60000d	Seeding, broadcast method w/ mulch and fertilizer	Acre	AS	0.20
60000e	Fabric, slope stabilization	SY	AS	1000
63000a	Install sign	Each	AS	6

Summary of Revegetation

LOCATION	ACRES
Repository	1.00
Pacific Mill	0.21
Blue Rock Mine	0.29
Scotchman #2 Mine	0.04
Blue Rock Road	0.12
Borrow Area	0.62
SUBTOTAL Stage 2	2.28
Miller Hill Tunnel	0.39
Miller Hill Tunnel Borrow Area	0.29
SUBTOTAL Stage 3	0.67
TOTAL	3.00

Earthwork Utilization Diagram



Pacific Mine Reclamation Project

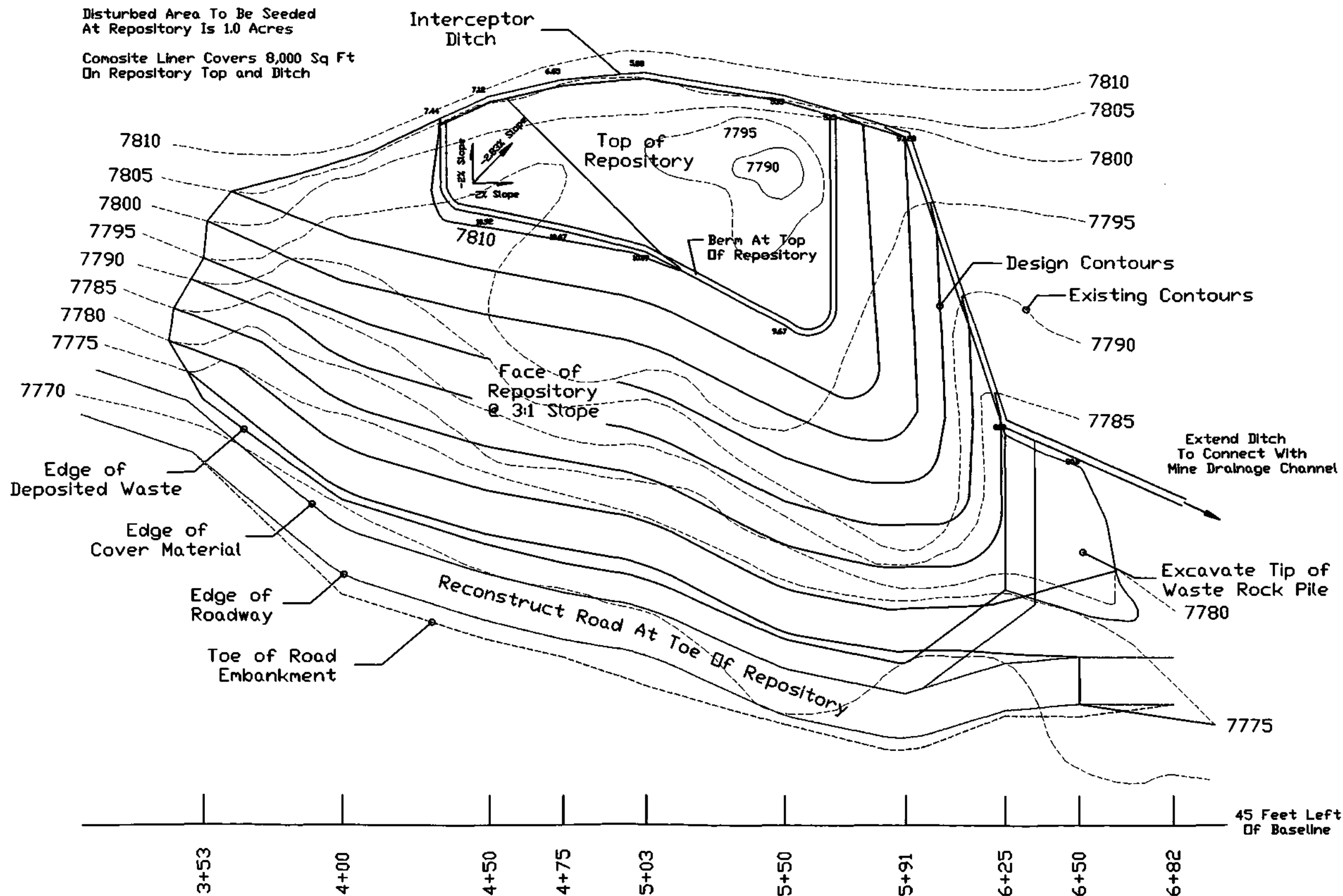
UTILIZATION OF MATERIALS

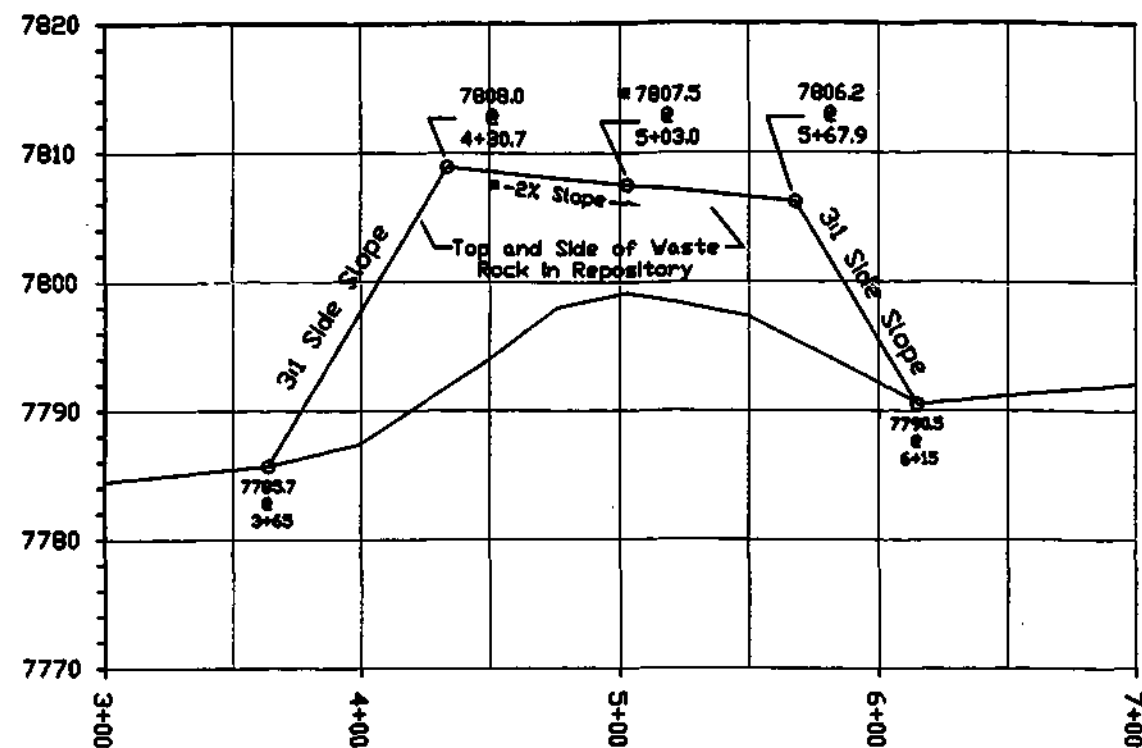
SUMMARY OF QUANTITIES

TROUT UNLIMITED
American Fork Canyon
Home Rivers Project

Prepared By
TVF
March 2005
Modified

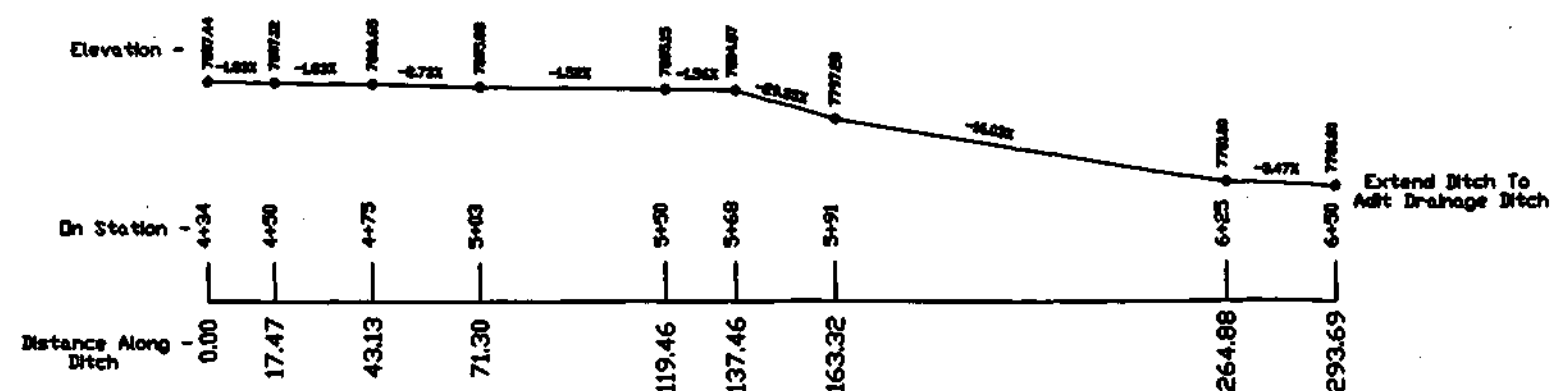
Sheet
3 of 20



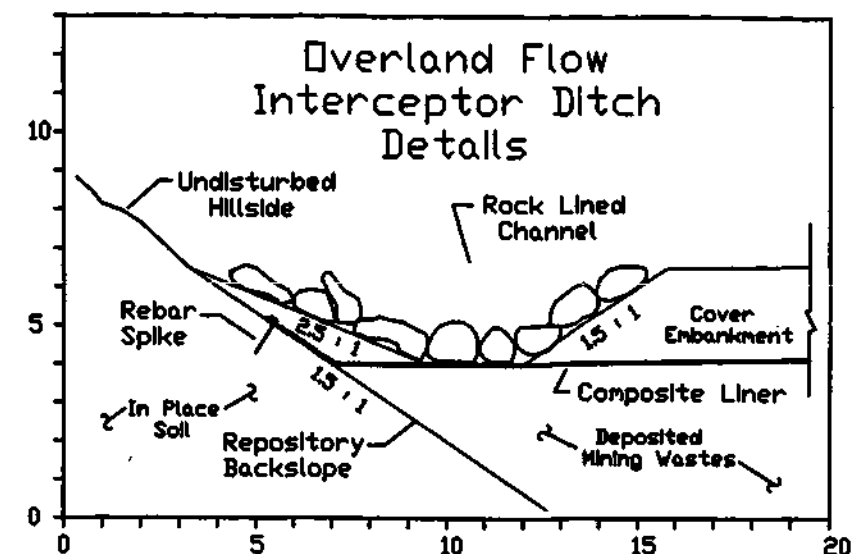


Repository Grade Control Profile

Note: The top of the Repository is controlled by the Grade Control Profile. The Grade Control Profile is located 220 feet left of the baseline and is based on Elevation 7807.5 at Station 5+03 and a 2% slope.

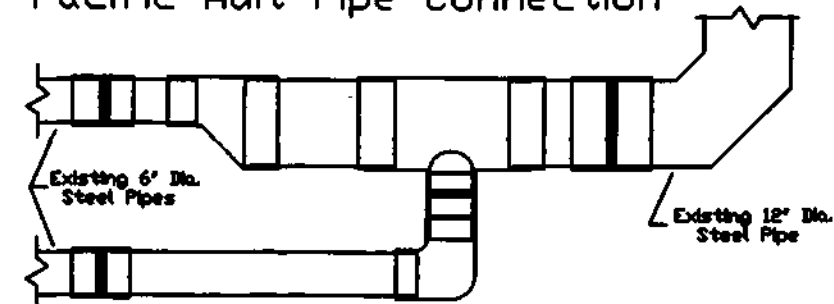


Interceptor Ditch Profile

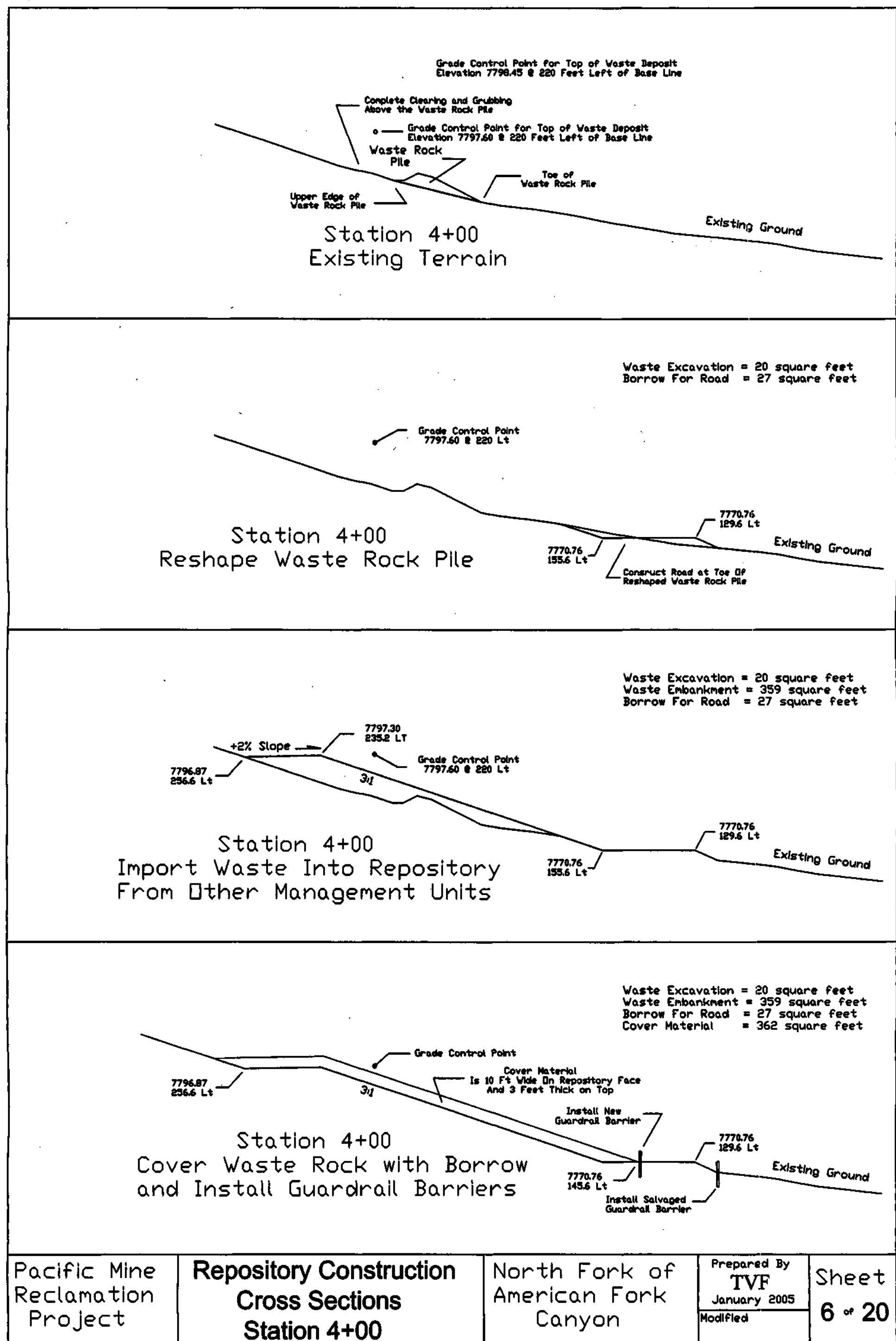


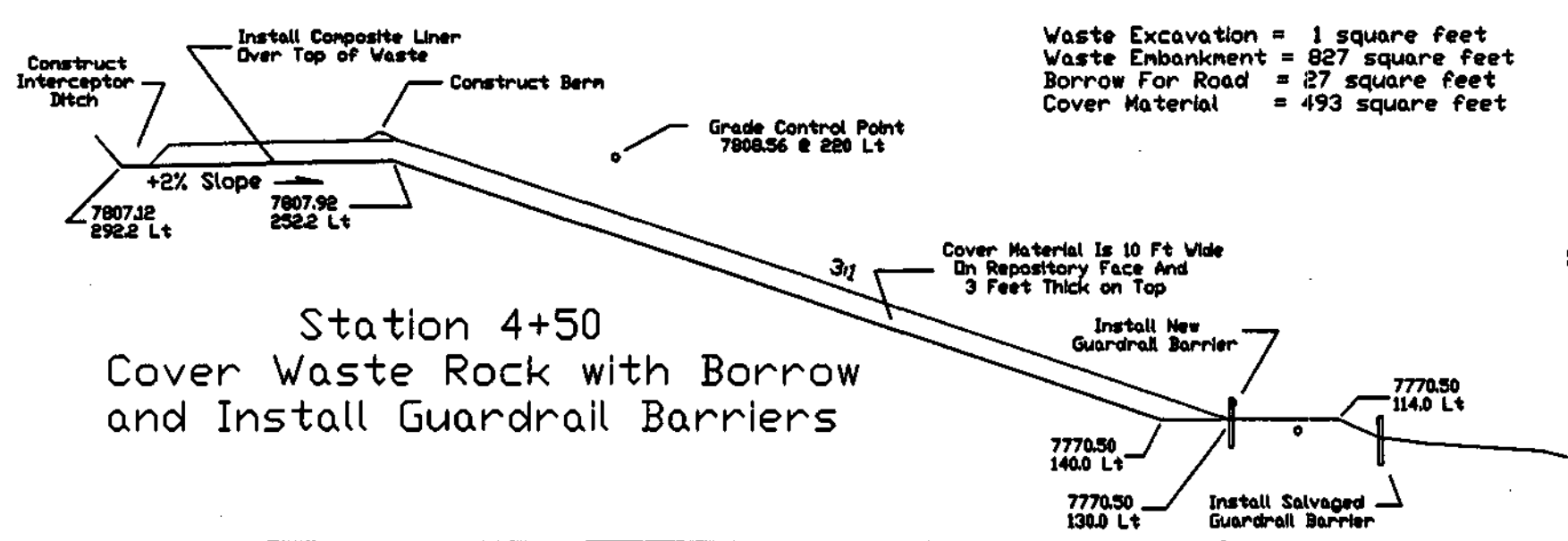
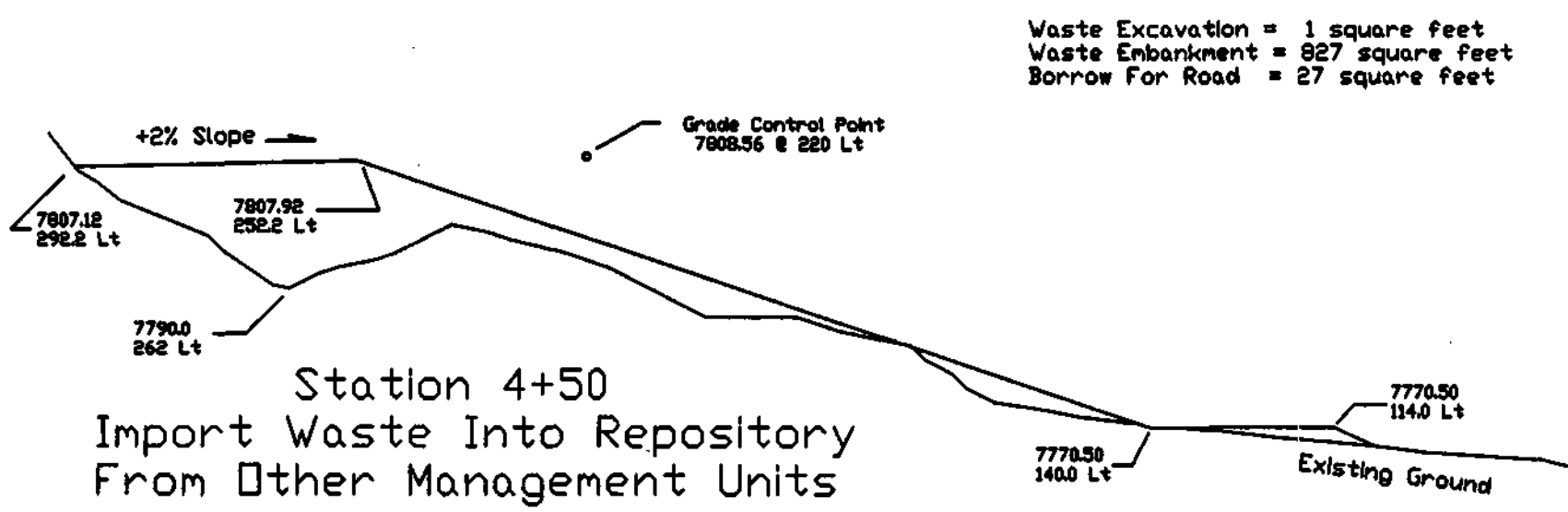
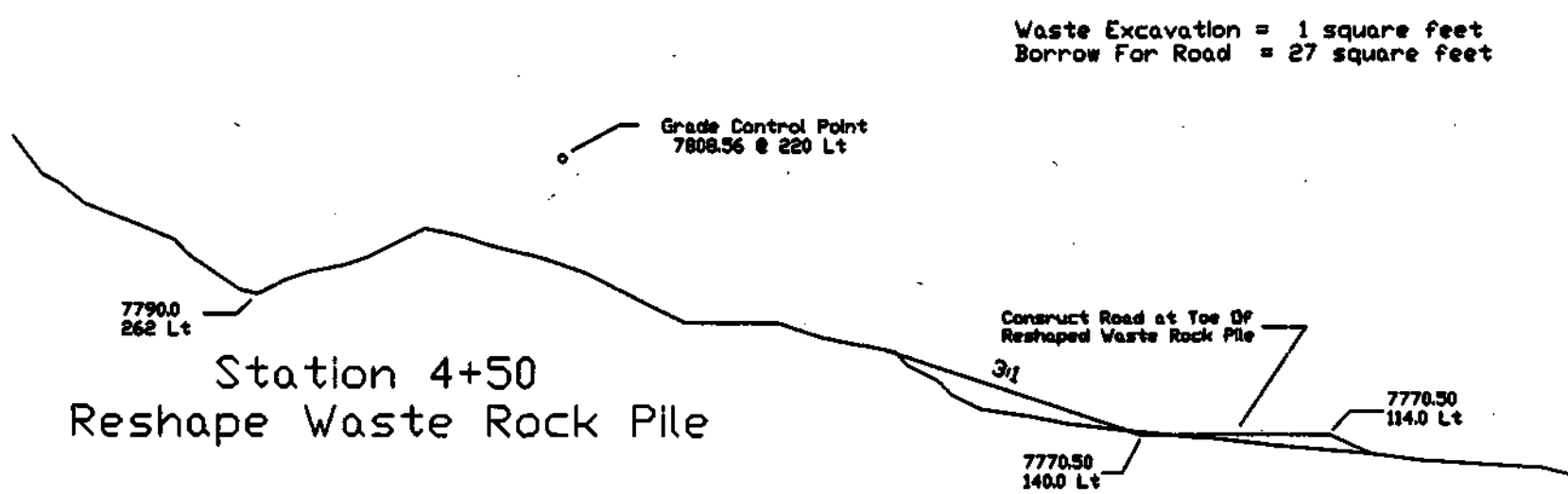
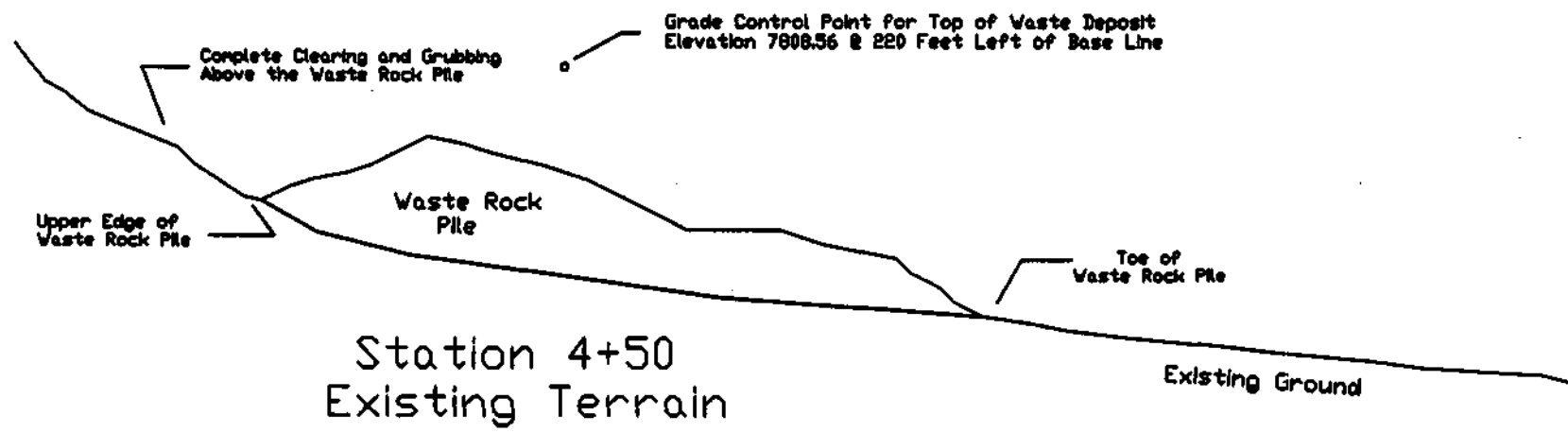
1. Extend repository liner across 4 foot flat bottomed ditch and up the 1.5 : 1 backslope for one foot. Secure the liner to the slope with #4 rebar spikes 1 foot long at 10 foot spacing.
2. Place soil over the liner and up the slope at a 2.5 : 1 slope, burying the end of the liner with this embankment.
3. Leave 1.5 feet of the liner exposed at the bottom of the ditch.
4. Place cover embankment over the repository, separating 160 cu. yds. of rock from the borrow material for placement in the interceptor ditch.
5. Place rock in ditch in a manner that will not damage the exposed liner, leaving voids between the rocks for passage of water.

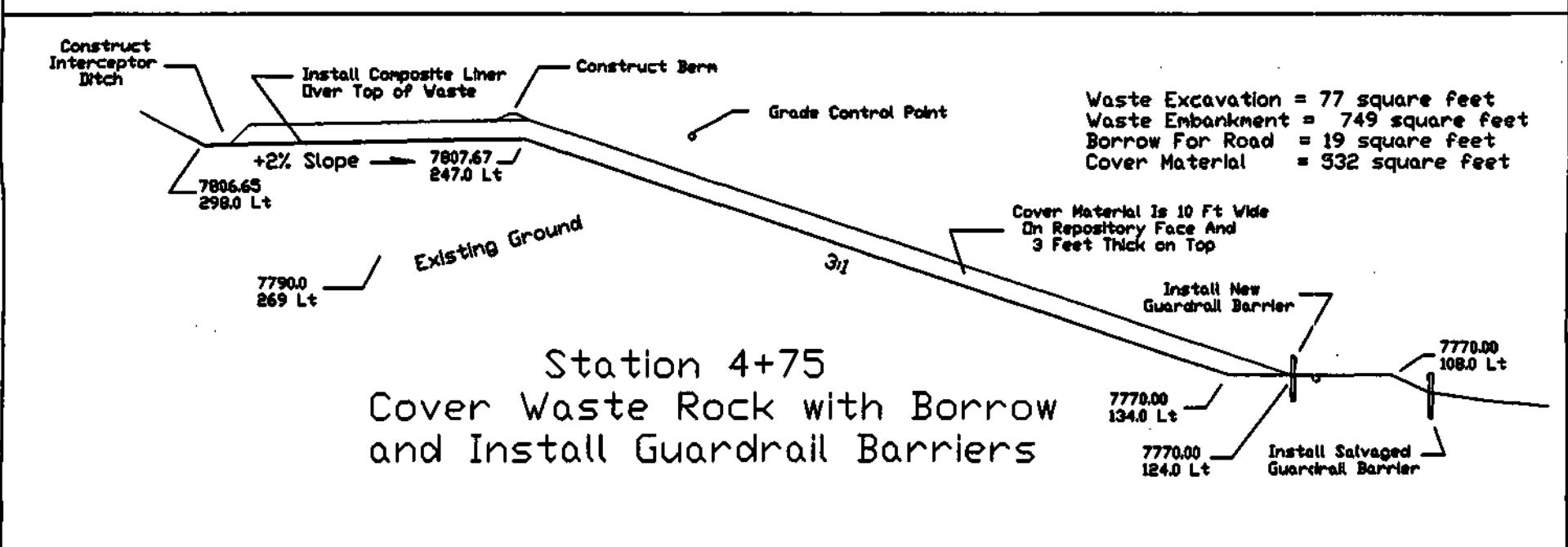
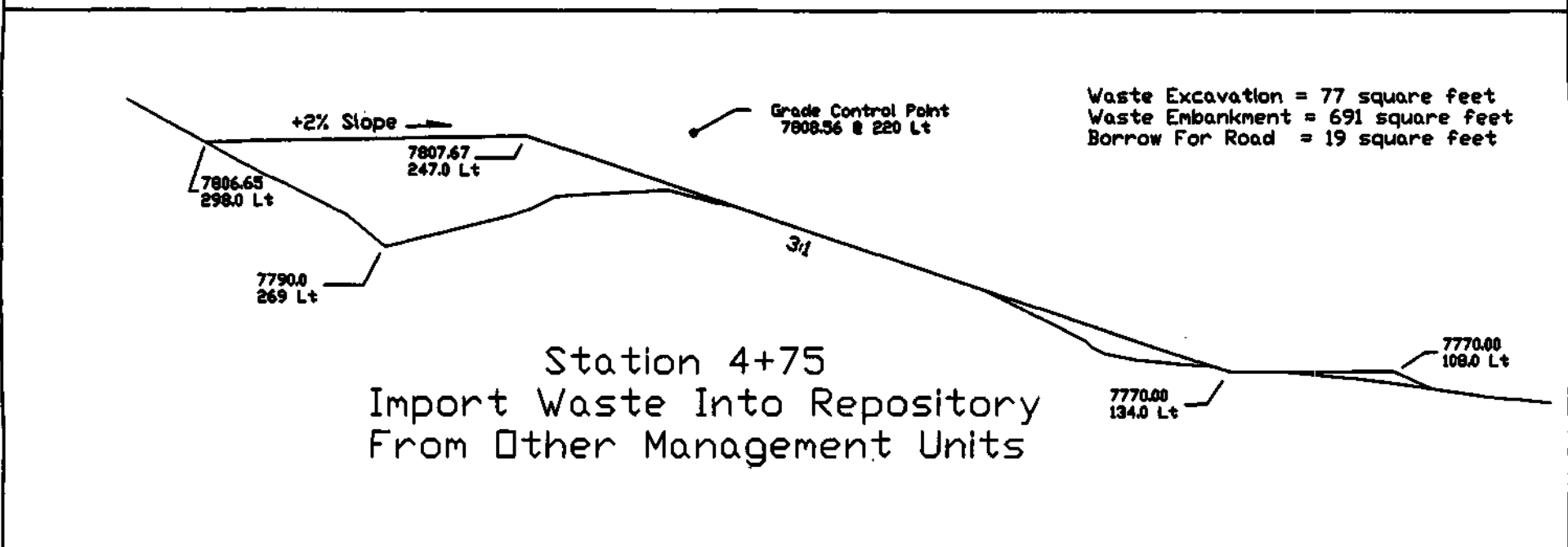
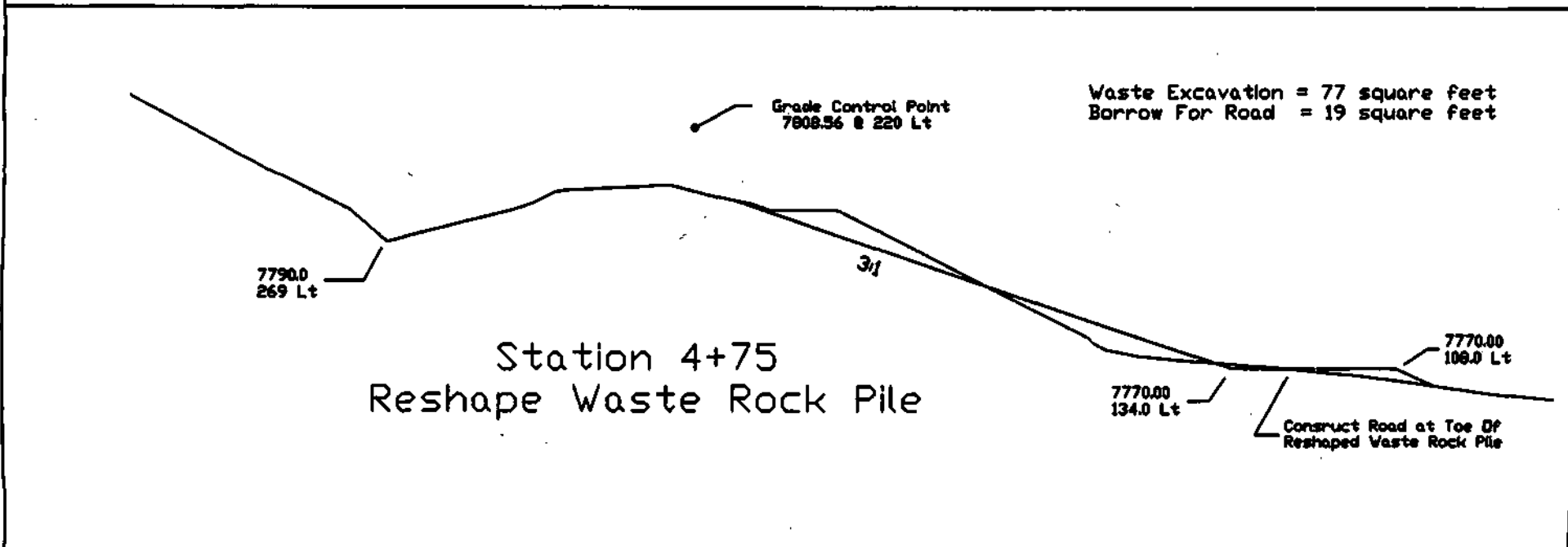
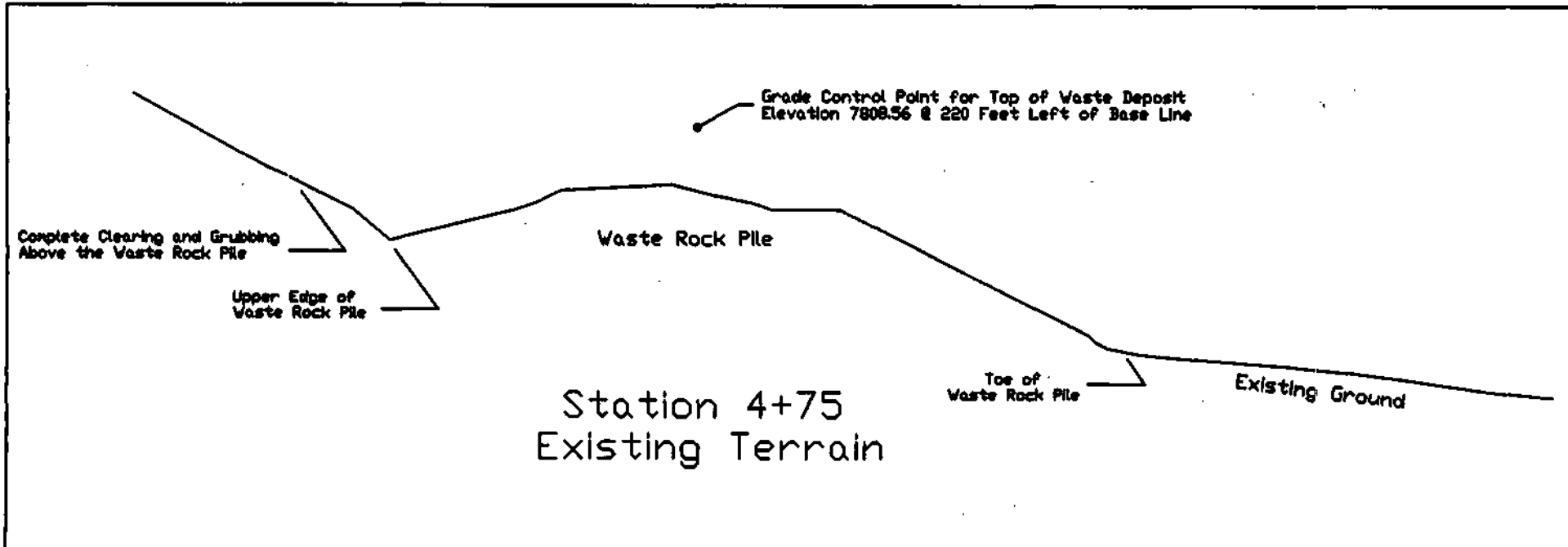
Pacific Adit Pipe Connection

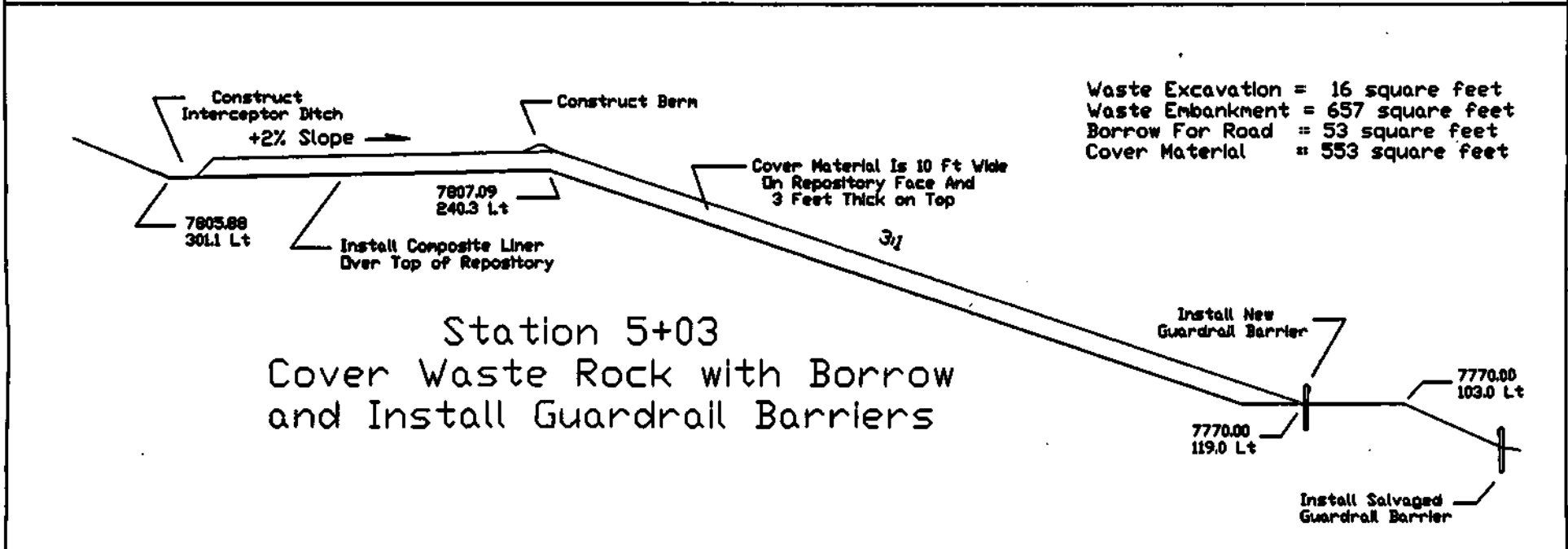
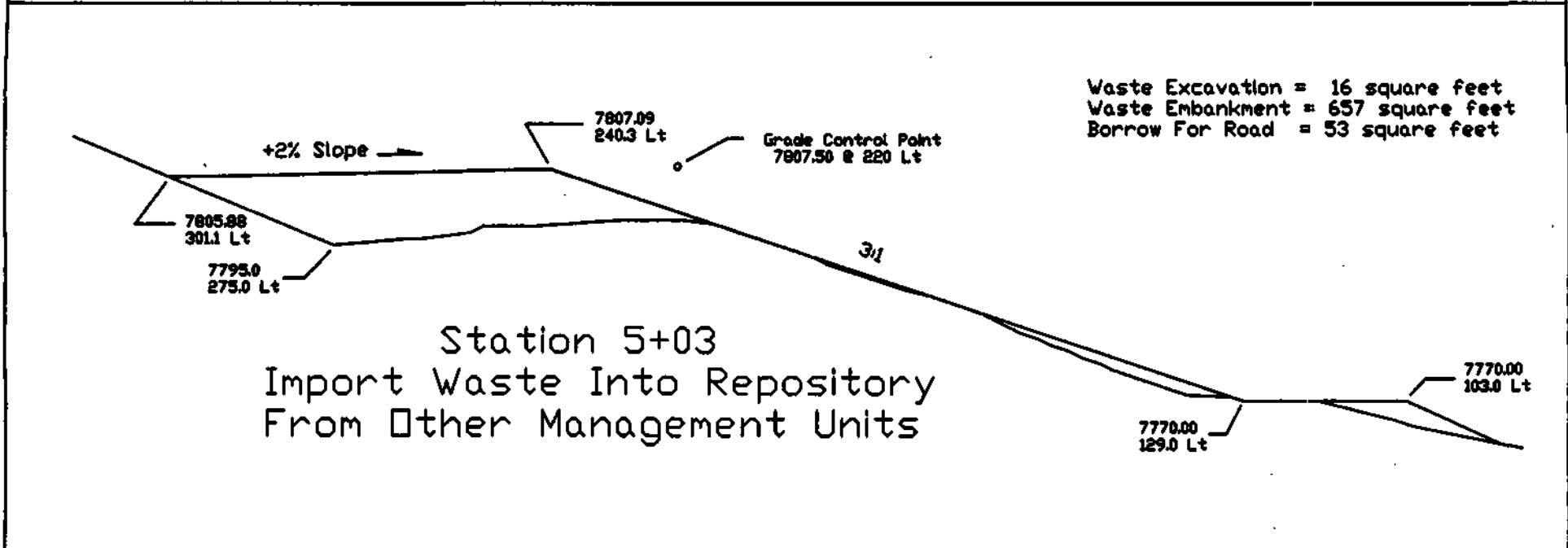
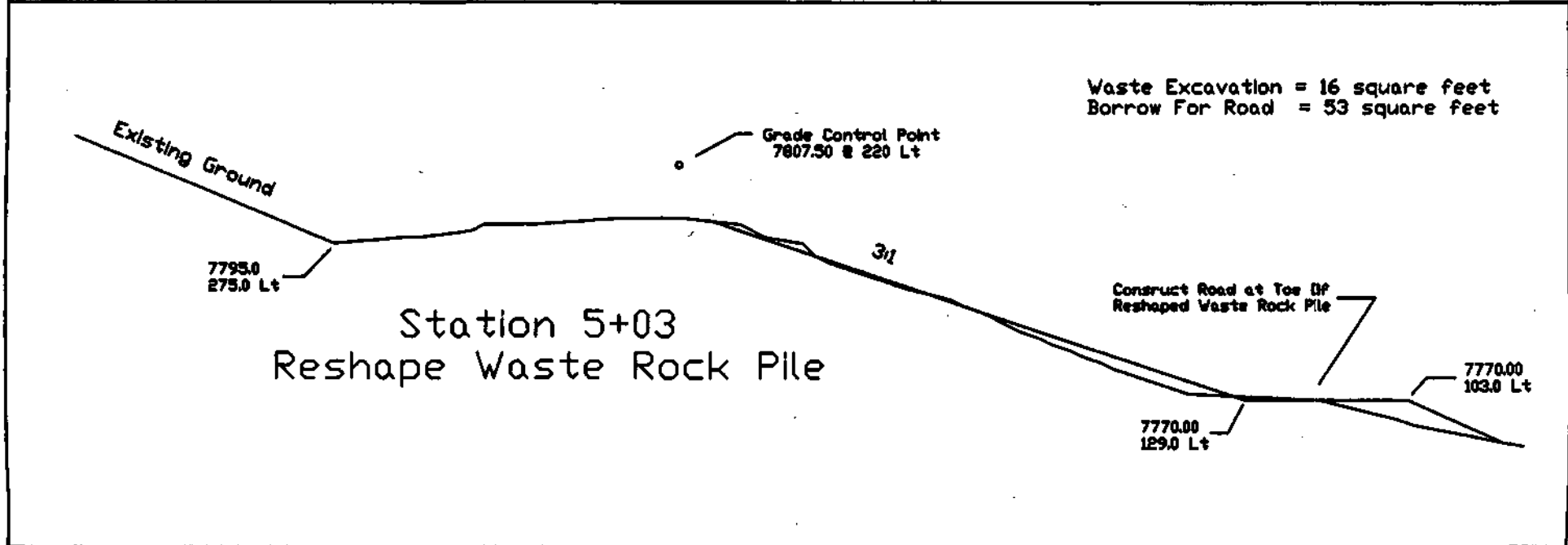
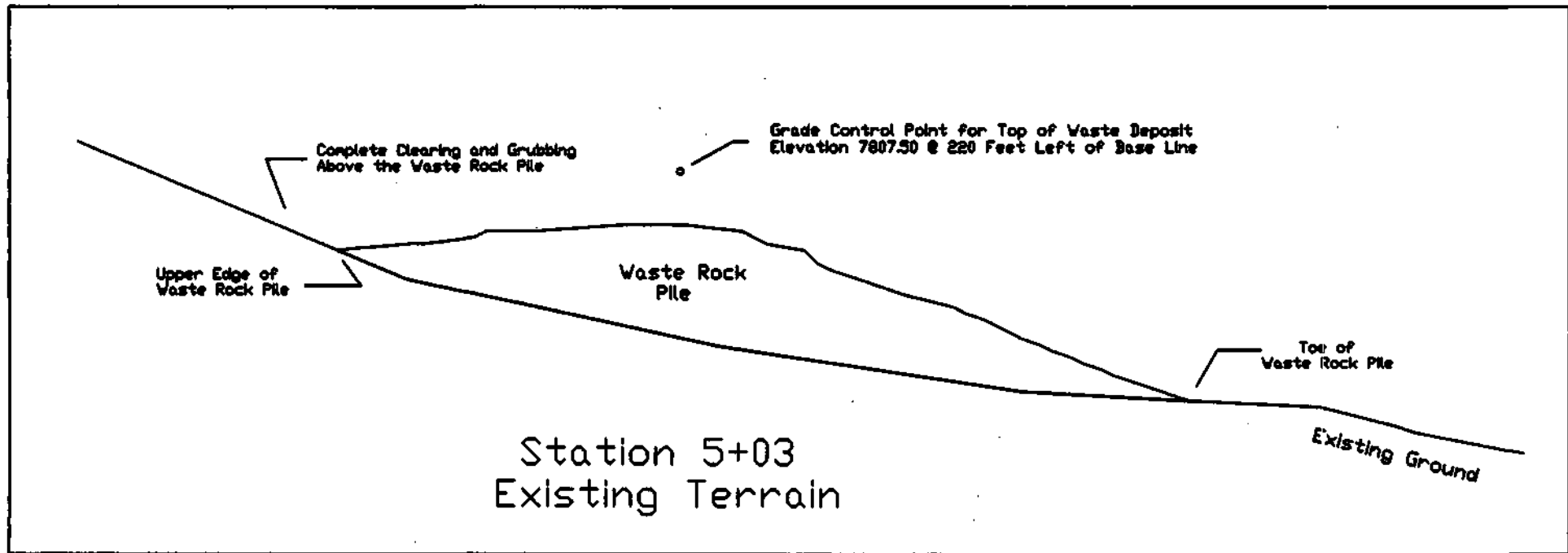


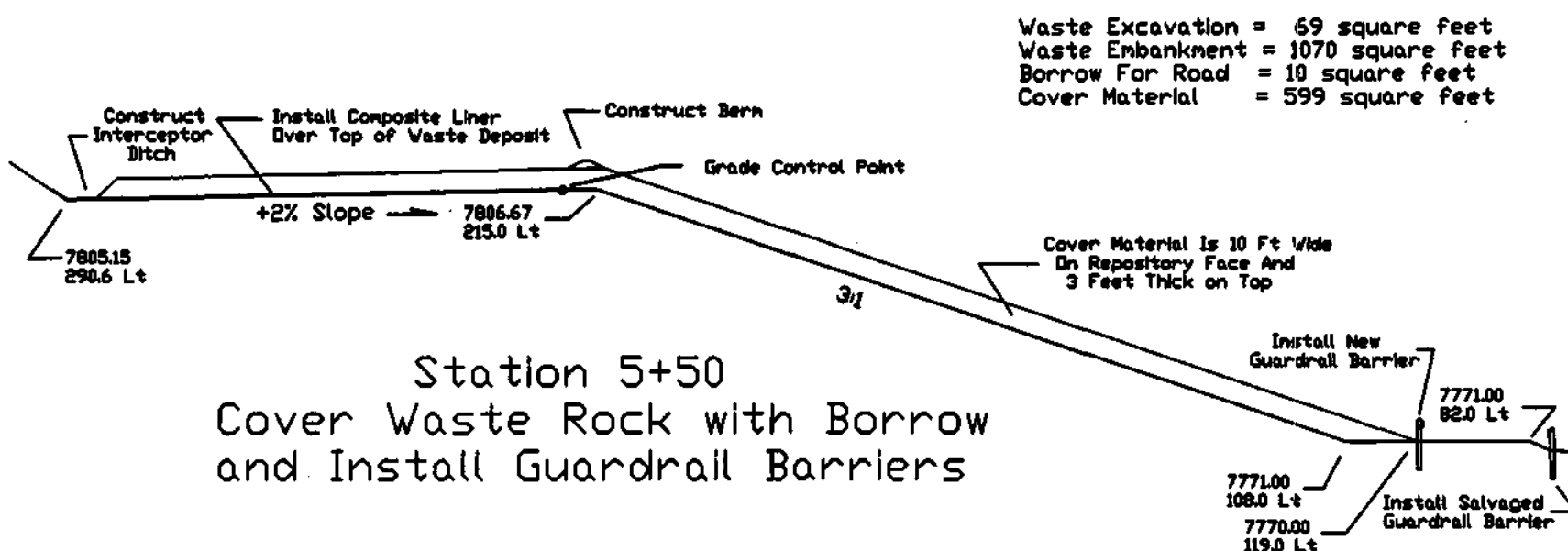
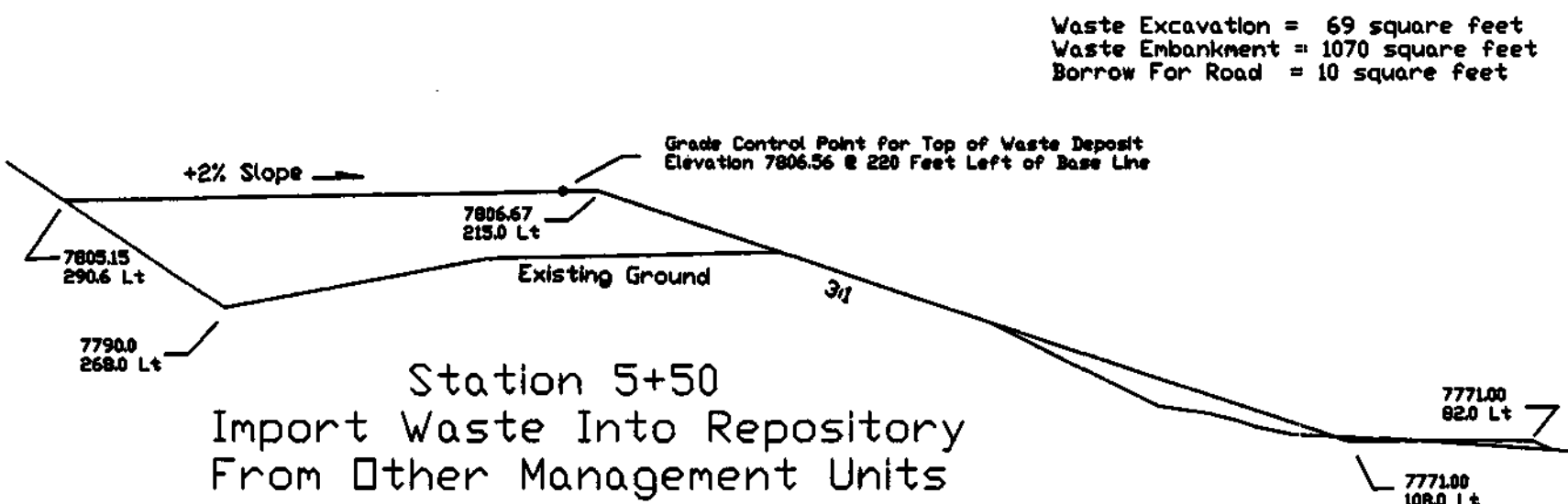
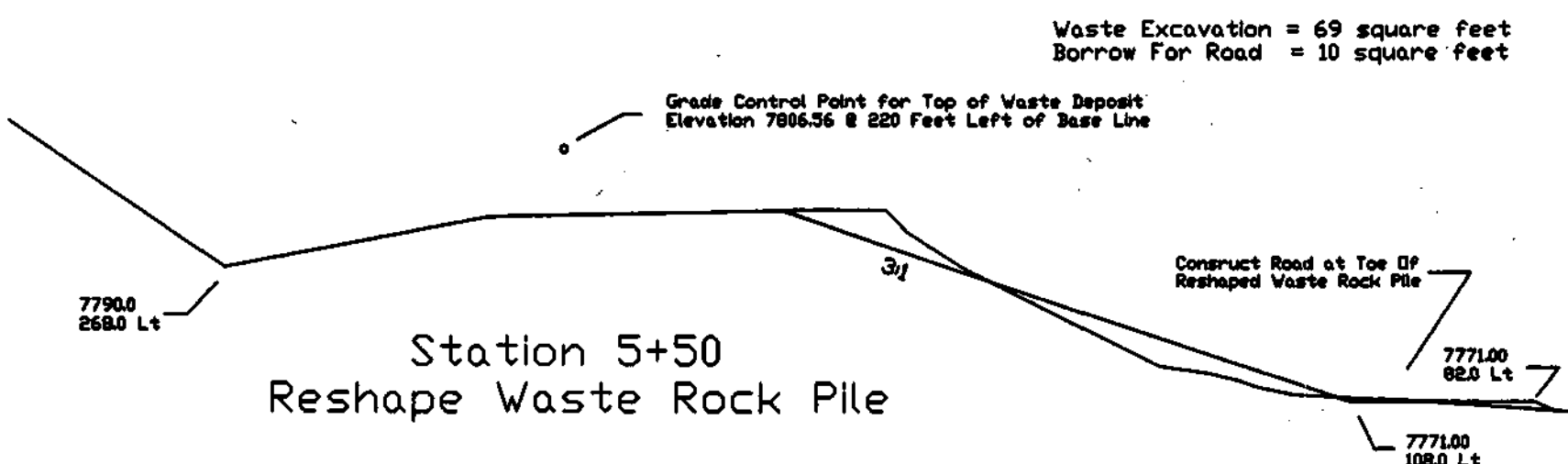
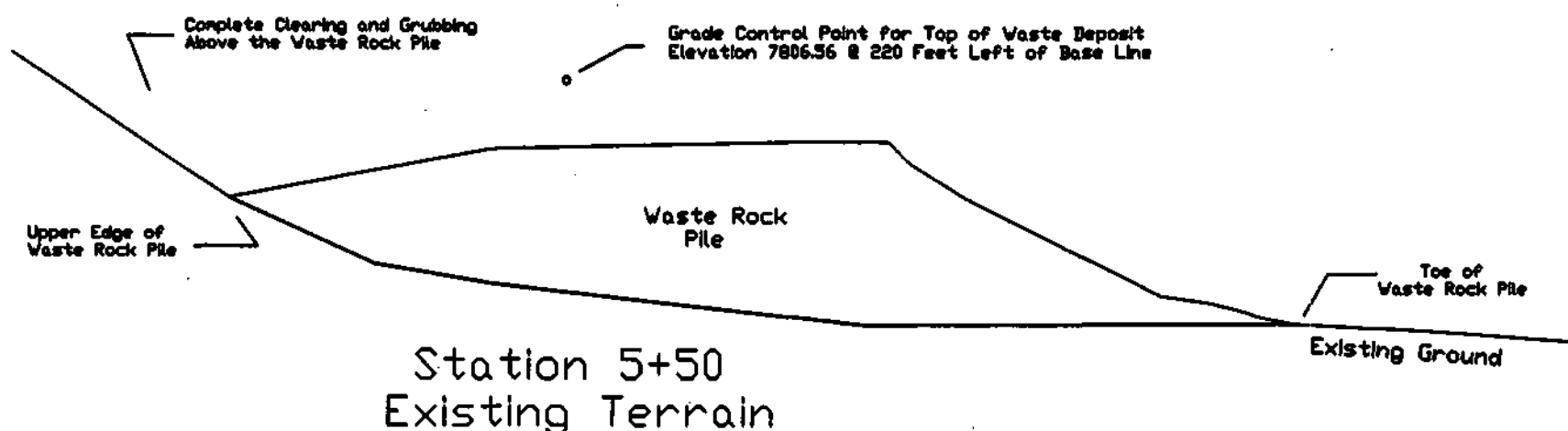
1. Drainage from the plugged Pacific Adit discharges from two six inch diameter steel pipes approximately 2 feet apart center to center.
2. Approximately six feet from the discharge pipes the mine drainage enters a 12 inch diameter steel pipe.
3. After field verifying all dimensions and distances, fabricate a water tight connection to connect the discharge pipes to the 12 inch drainage pipe and cover with 2 feet of borrow material.

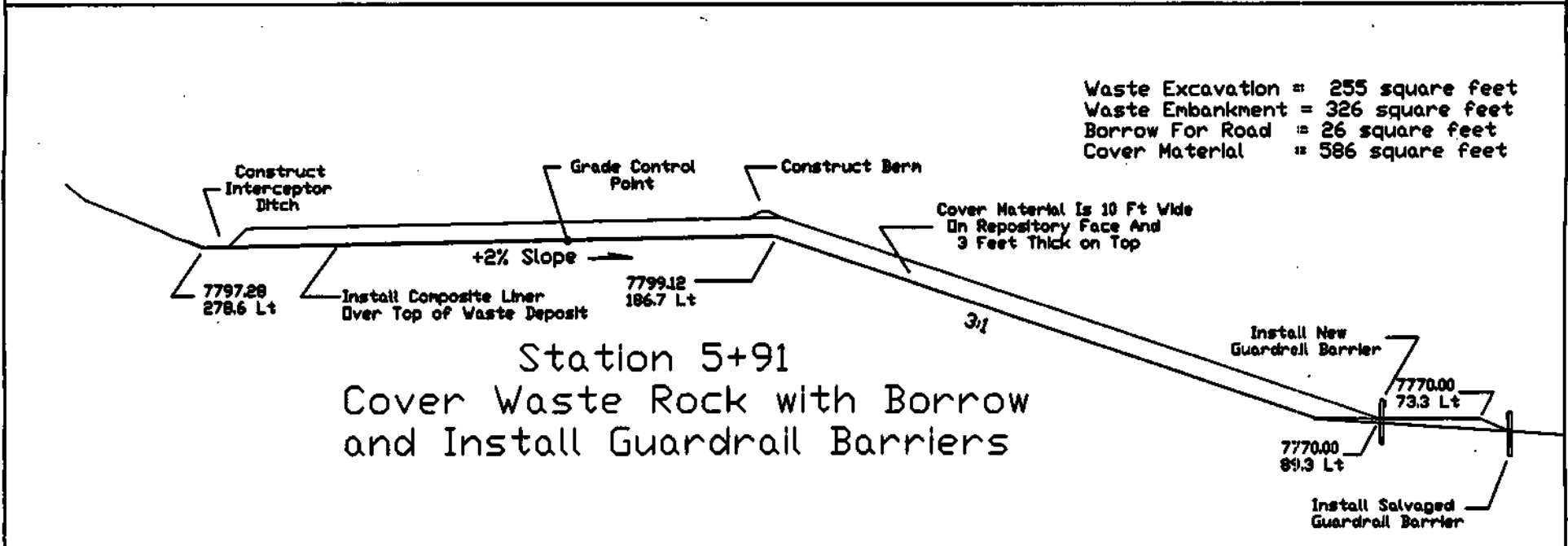
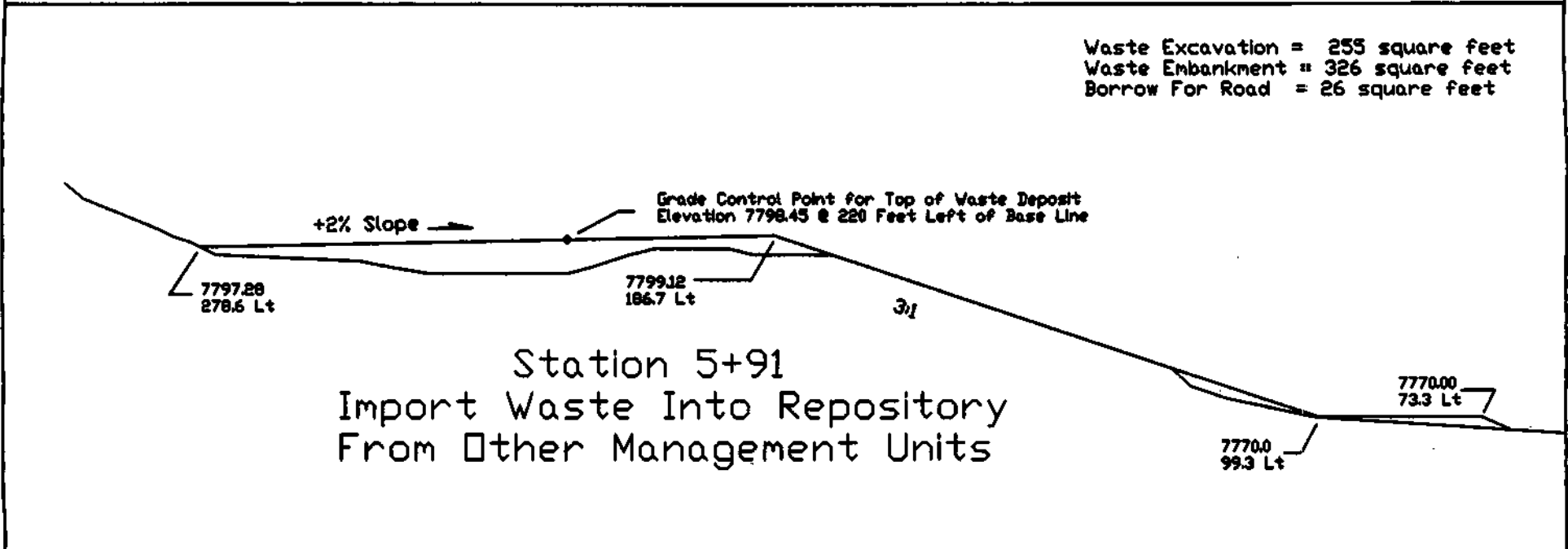
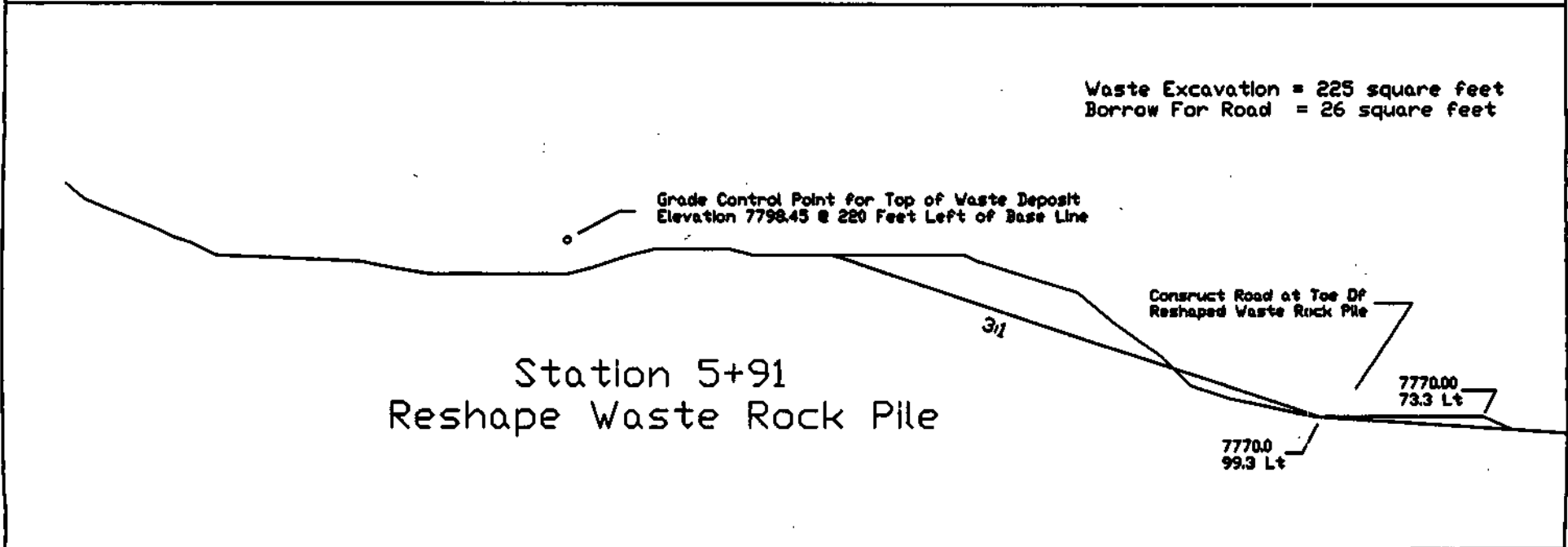
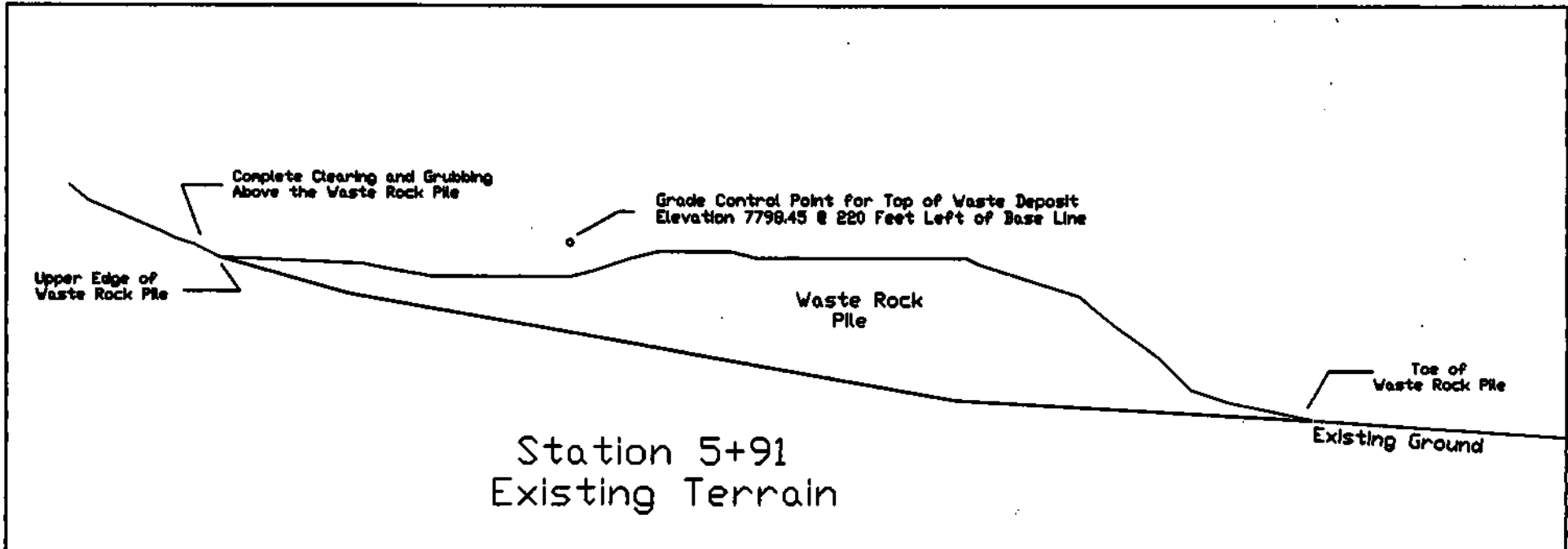




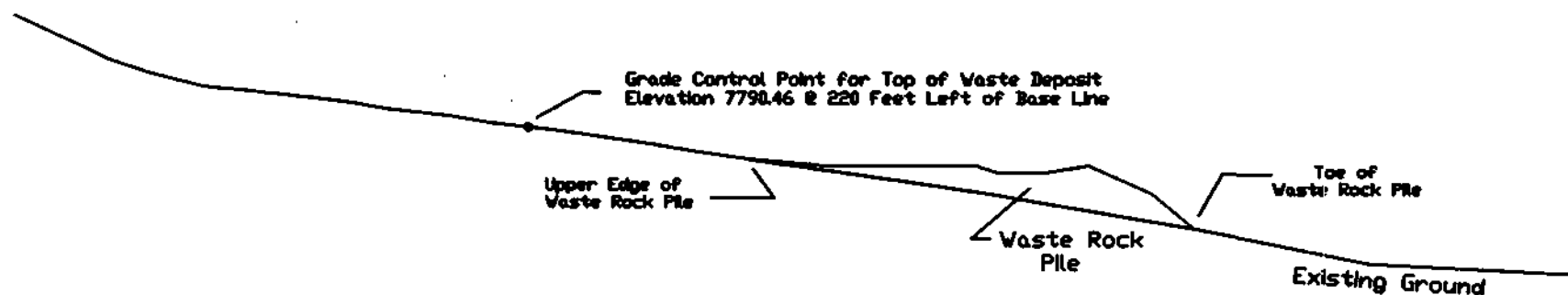






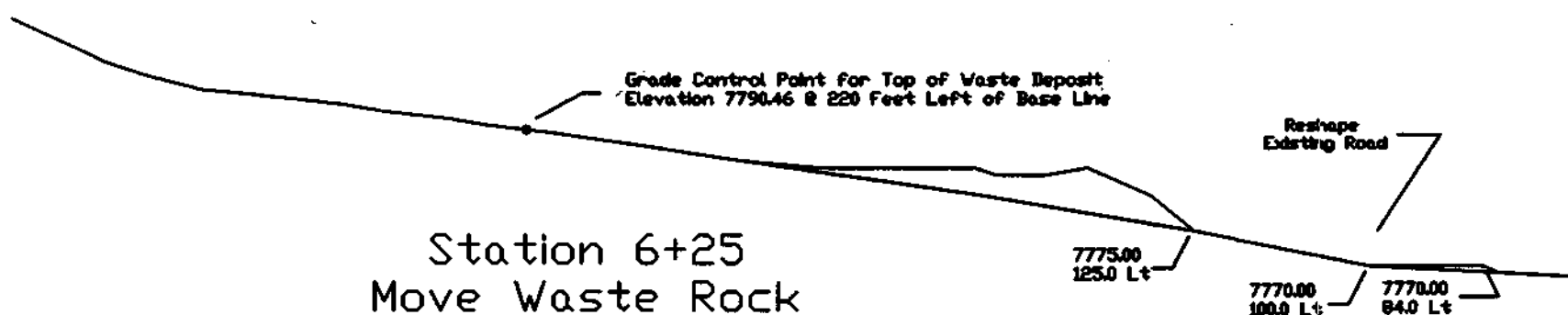


Pacific Mine Reclamation Project	Repository Construction Cross Sections Station 5+91	North Fork of American Fork Canyon	Prepared By TVF January 2003 Modified	Sheet 11 of 20
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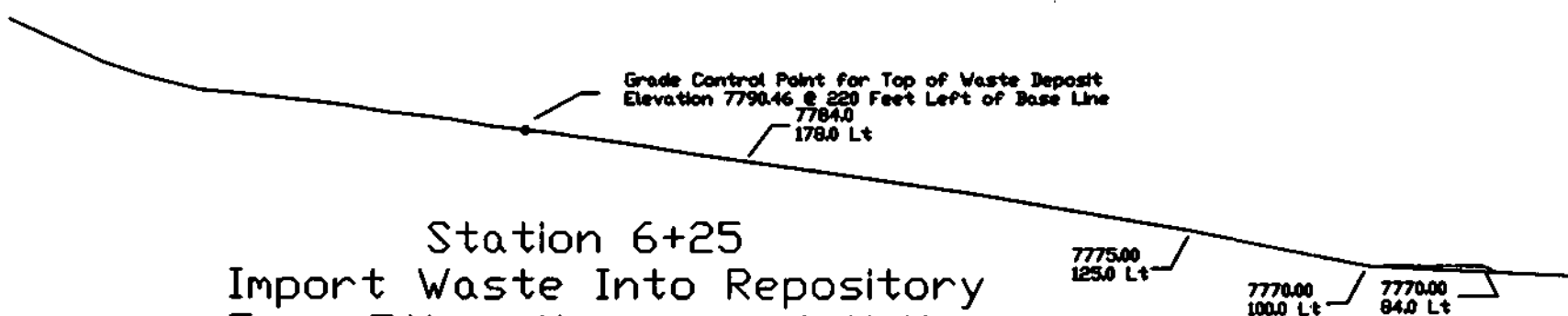
Station 6+25
Existing Terrain

Waste Excavation = 170 square feet
Borrow For Road = 7 square feet



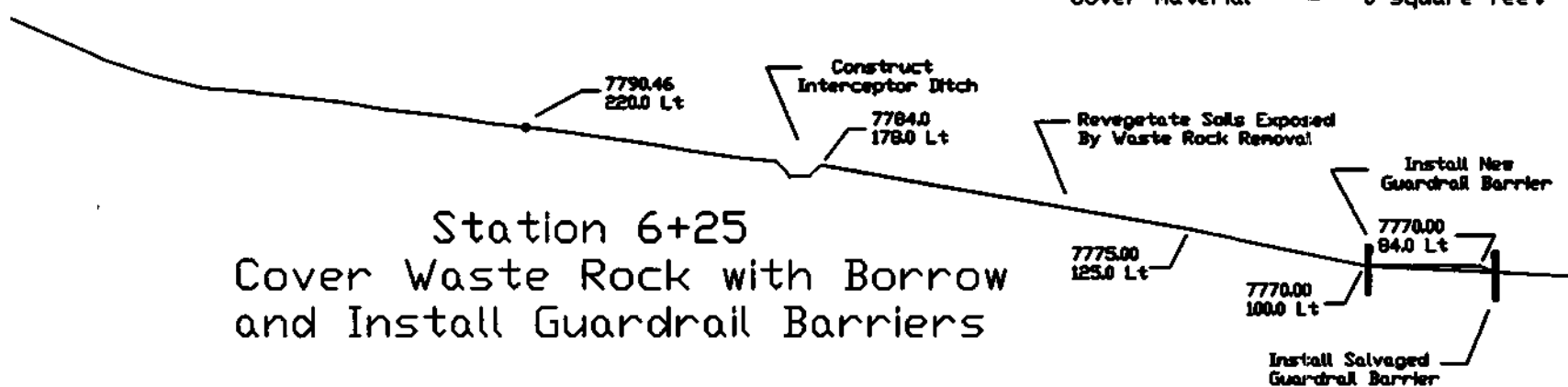
Station 6+25
Move Waste Rock
To Repository

Waste Excavation = 170 square feet
Waste Embankment = 0 square feet
Borrow For Road = 7 square feet

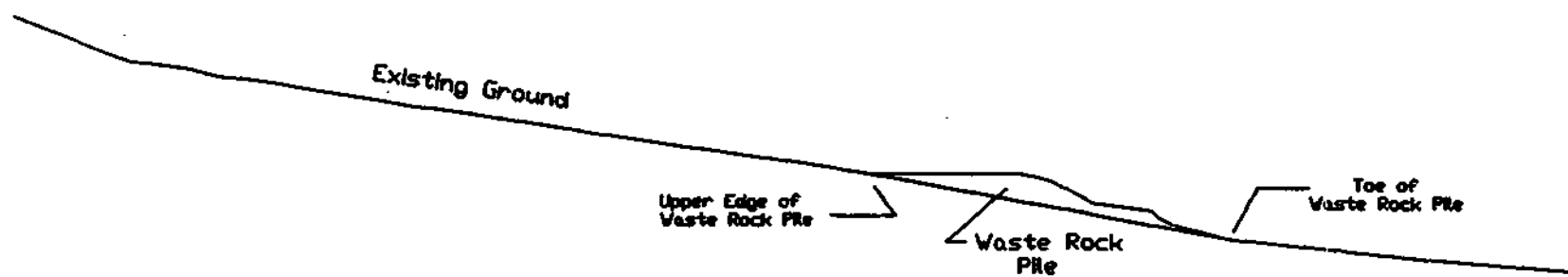


Station 6+25
Import Waste Into Repository
From Other Management Units

Waste Excavation = 170 square feet
Waste Embankment = 0 square feet
Borrow For Road = 7 square feet
Cover Material = 0 square feet

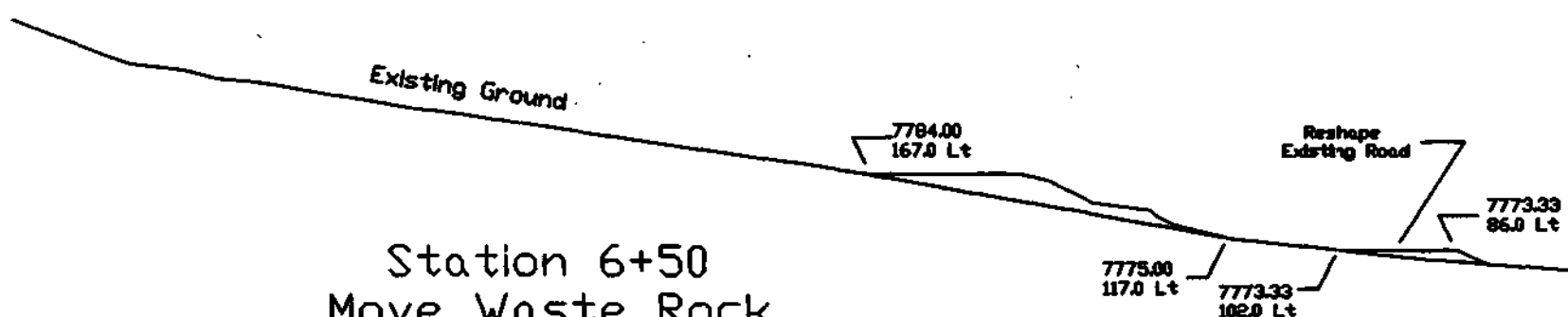


Station 6+25
Cover Waste Rock with Borrow
and Install Guardrail Barriers



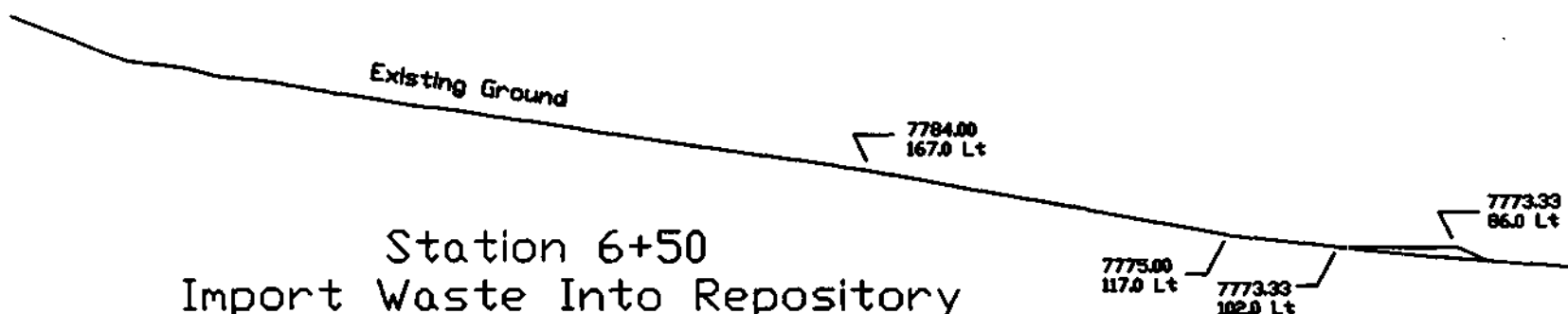
Station 6+50
Existing Terrain

Waste Excavation = 89 square feet
Borrow For Road = 16 square feet



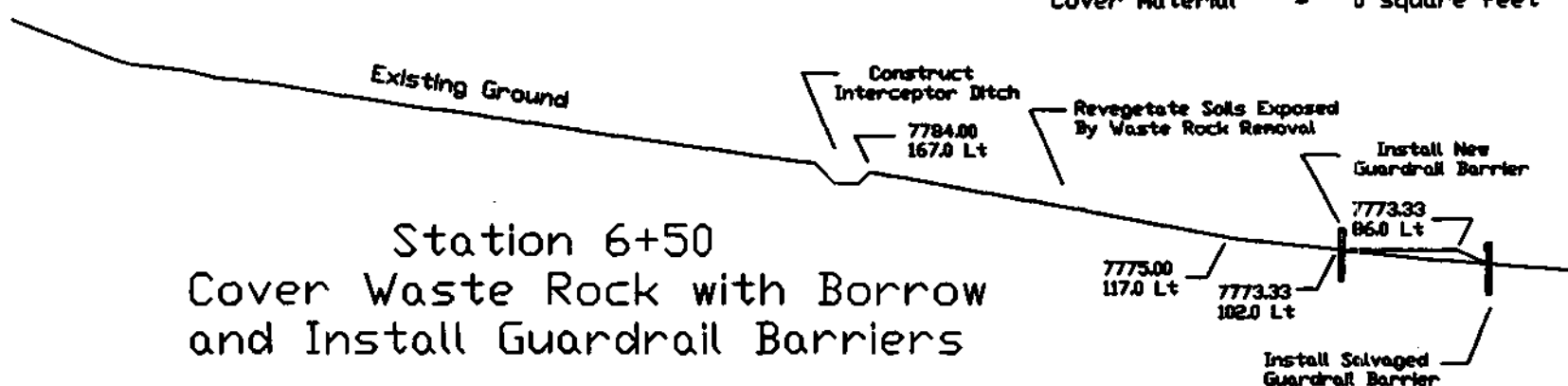
Station 6+50
Move Waste Rock
To Repository

Waste Excavation = 89 square feet
Waste Embankment = 0 square feet
Borrow For Road = 16 square feet

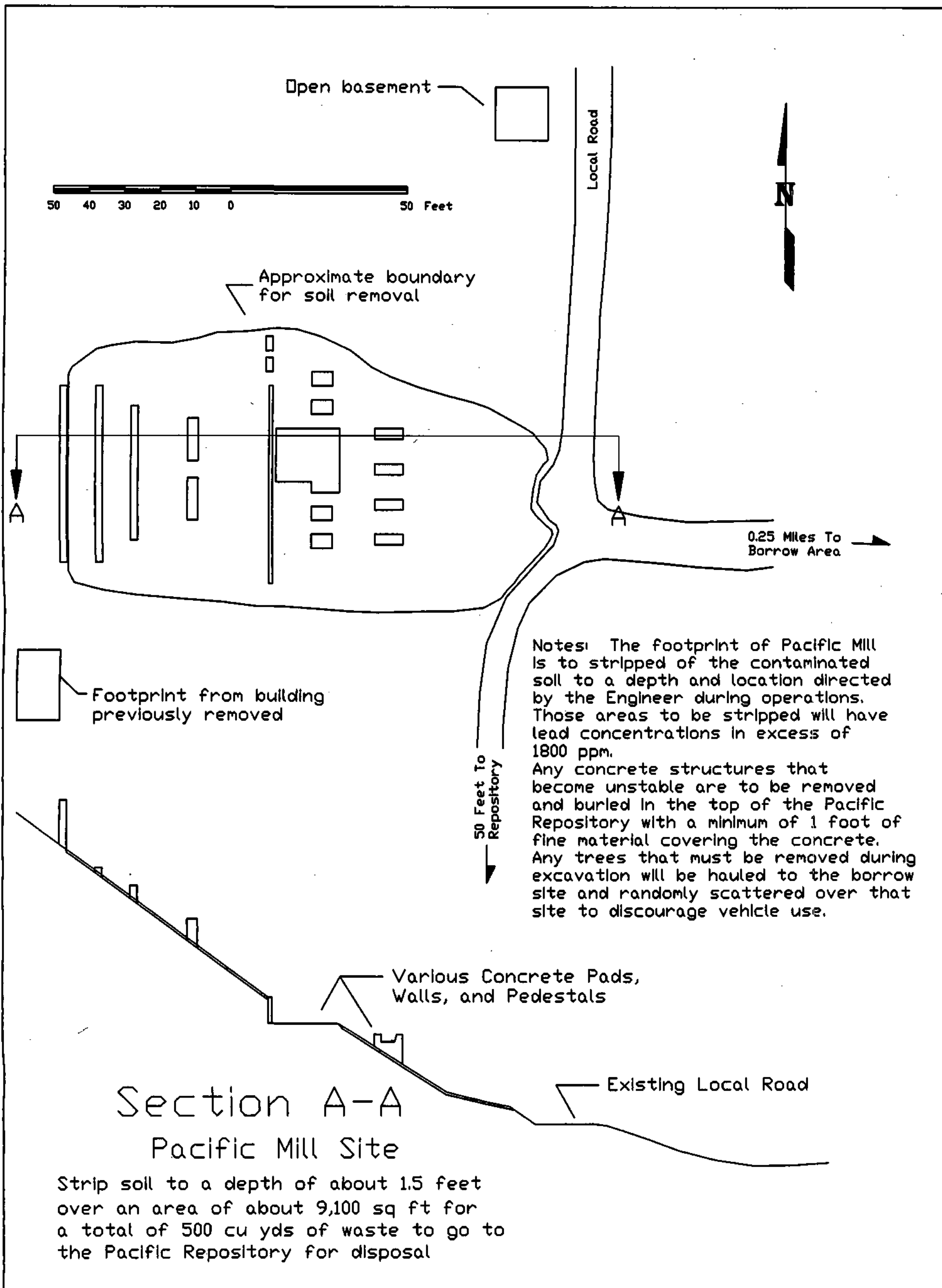


Station 6+50
Import Waste Into Repository
From Other Management Units

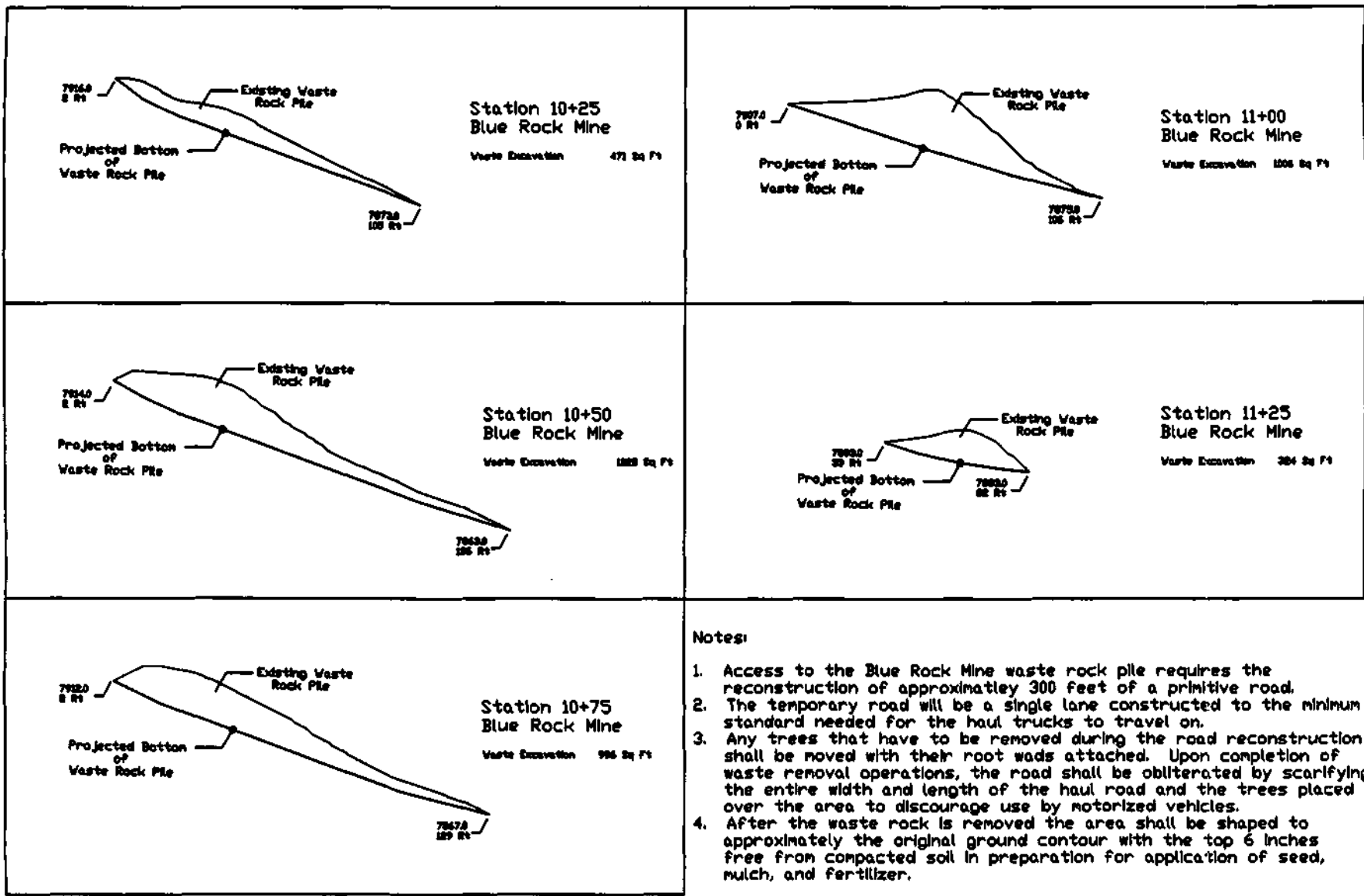
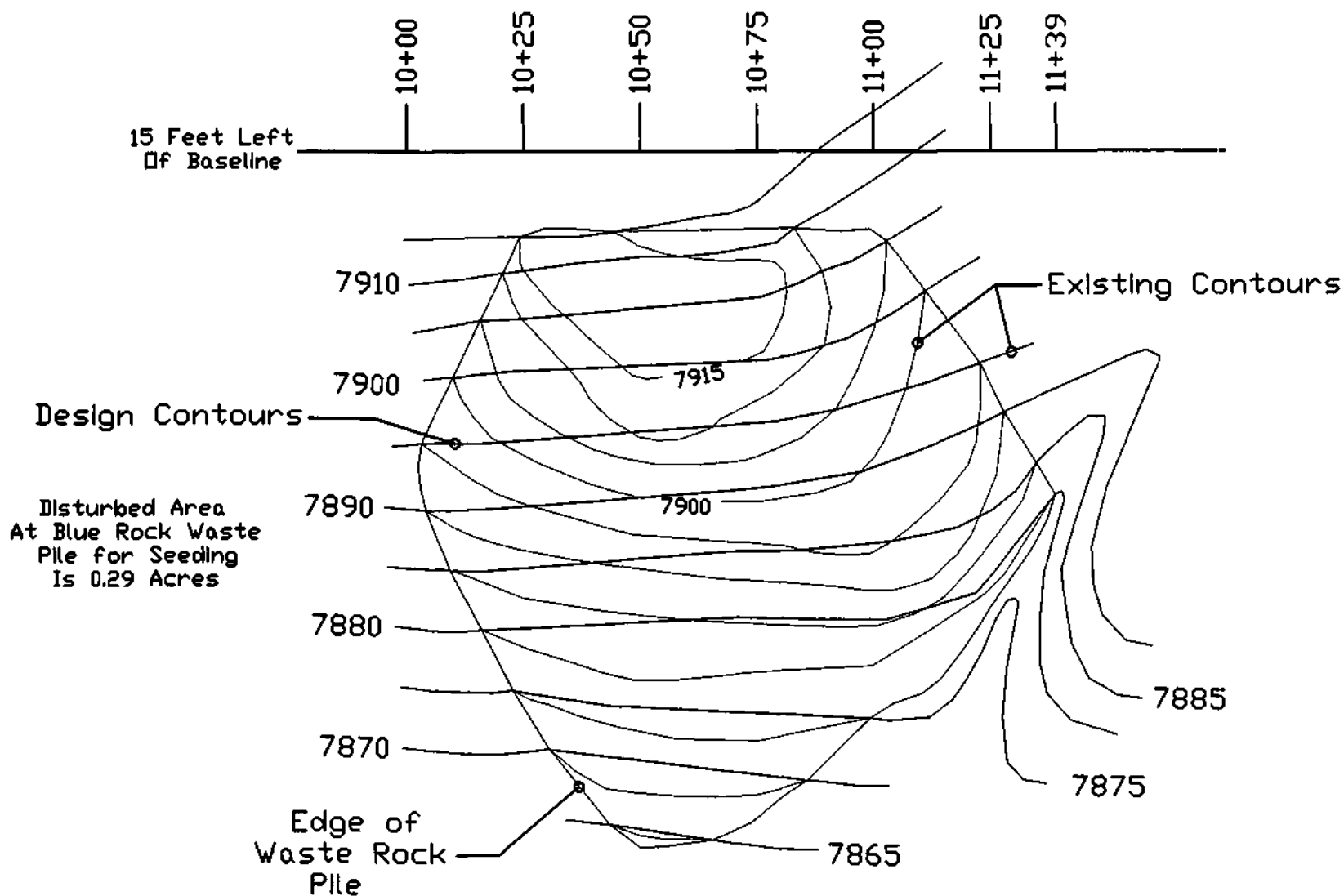
Waste Excavation = 89 square feet
Waste Embankment = 0 square feet
Borrow For Road = 16 square feet
Cover Material = 0 square feet

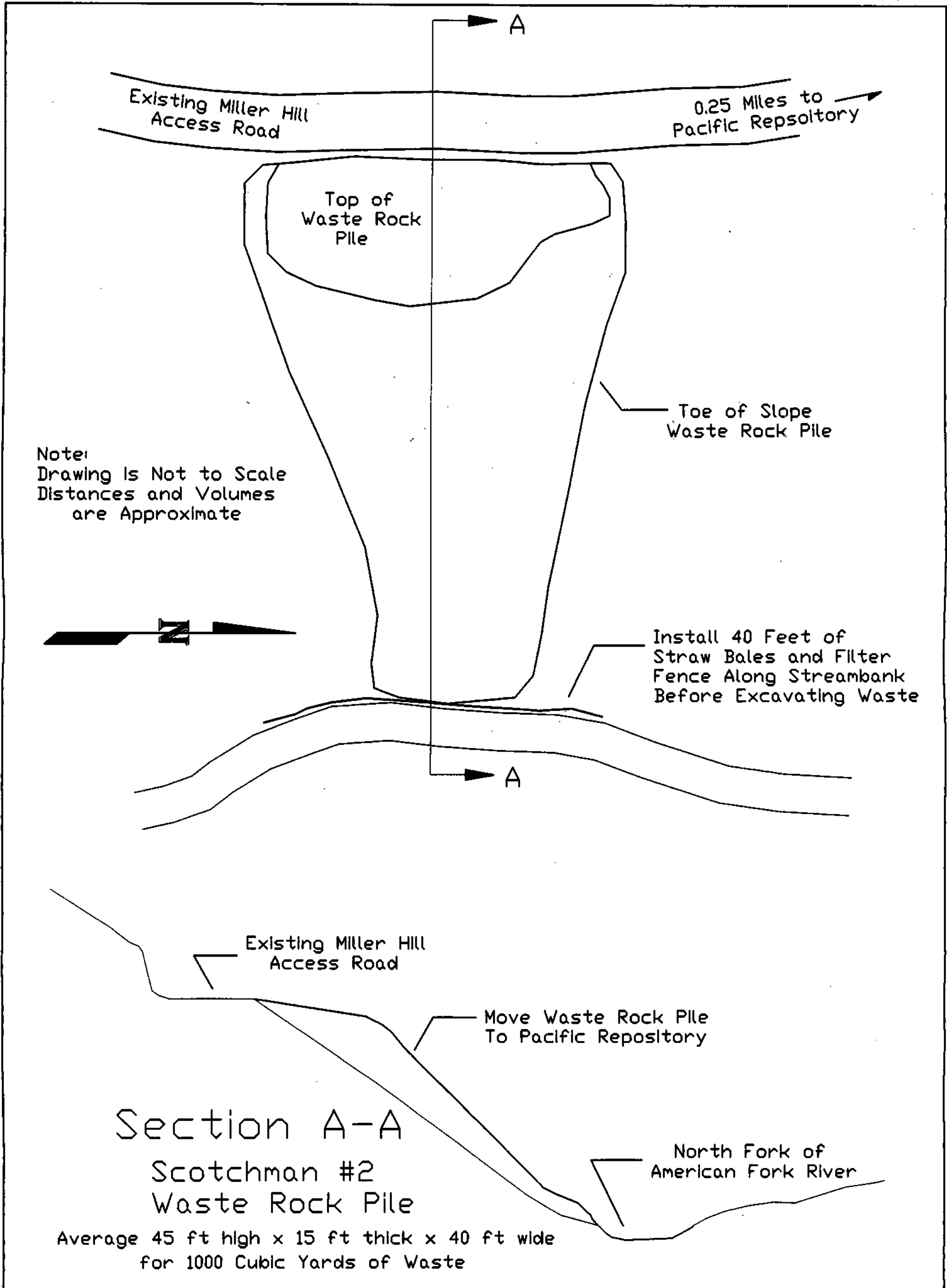


Station 6+50
Cover Waste Rock with Borrow
and Install Guardrail Barriers

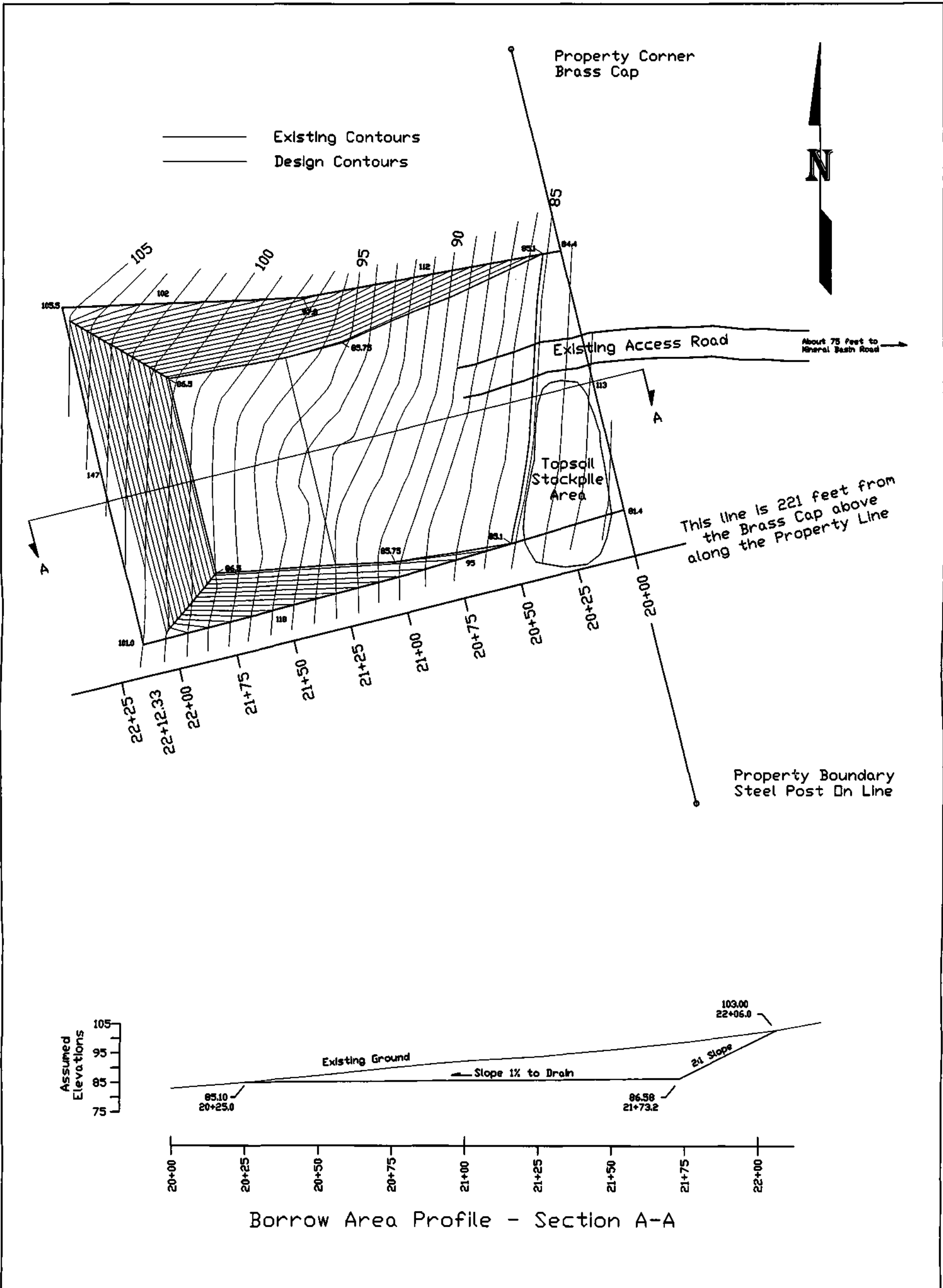


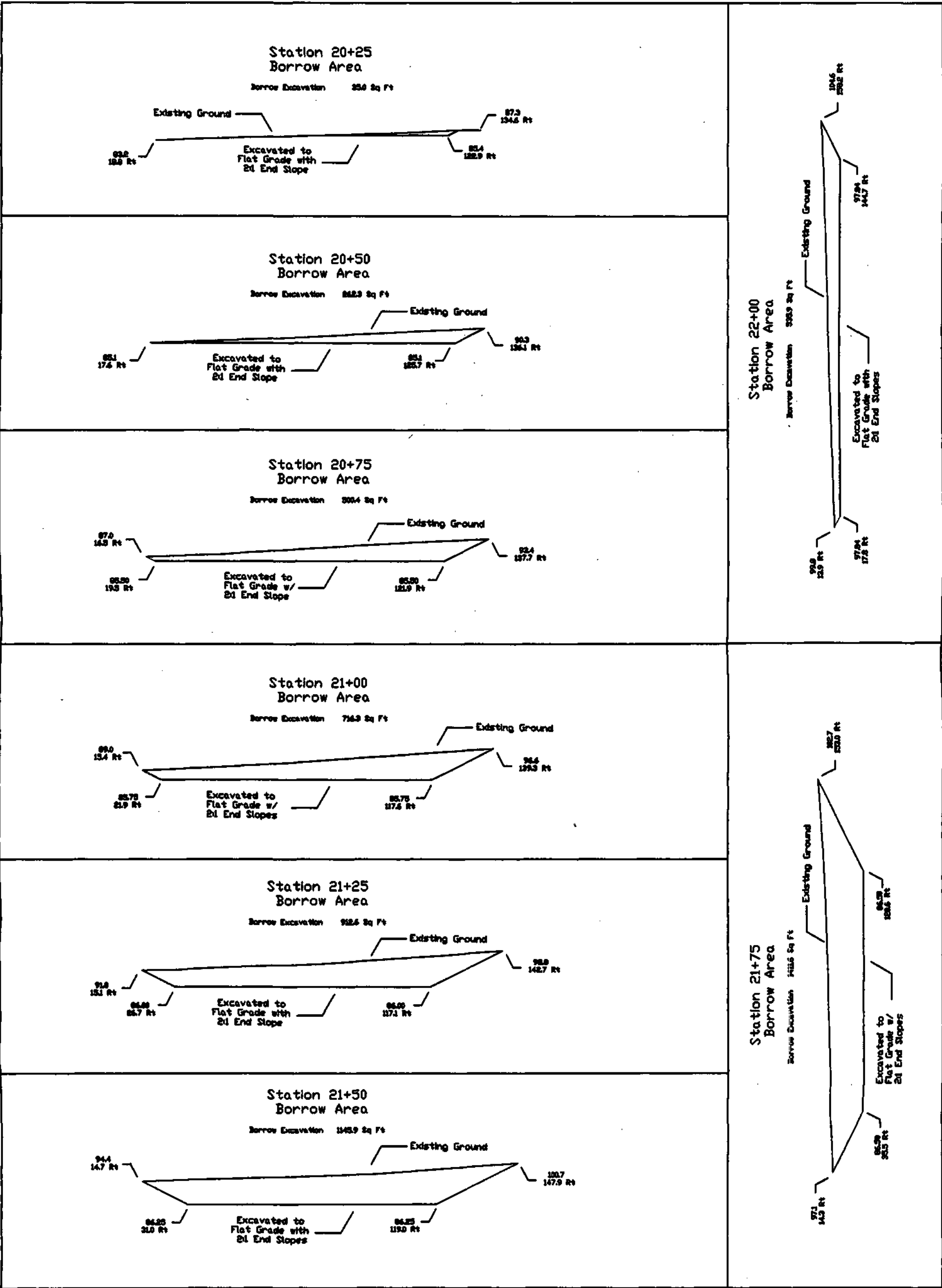
Pacific Mine Reclamation Project	Pacific Mill Removal Plan	North Fork of American Fork Canyon	Prepared By TVF March 2005 Modified	Sheet 14 of 20
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Pacific Mine Reclamation Project	Scotchman #2 Removal Plan	North Fork of American Fork Canyon	Prepared By TVF March 2005	Sheet 16 of 20
			Modified	





1. Widen the local roads from the borrow area to the area to be covered to accommodate haul trucks.
2. Reestablish backfill material around the culvert in the stream that accesses the Miller Hill Tunnel camp site.
3. Establish a temporary stream crossing of the smaller channel adjacent to the disturbed area. Install a temporary culvert (18 inch diameter - 20 feet long) with straw bales and silt fences lining the embankment on both sides.
4. Place one foot of borrow material over the disturbed area at Miller Hill Tunnel in preparation for revegetative applications.
5. Final shape the borrow areas to provide two separate dispersed camping areas with a ridge of undisturbed earth between them.
6. It will be necessary to remove several boulders placed as barriers to prevent vehicle access to this site before the work can be done. The boulders must be replaced to reestablish the barrier after the work is completed and the temporary stream crossing is removed.

**Miller Hill Tunnel
Disturbed Area**

**Borrow Areas
For Cover Material**

Note: Property Lines established at the Miller Hill Tunnel site have determined that the entire disturbed area and loop road are on National Forest System lands.

The property boundaries shown on this GIS coverage are approximate and are not exact.



NOTICE

The Miller Hill Tunnel site does not contain elevated levels of heavy metals and is not included for work under this project via the authorization issued by the EPA. This portion of the project was approved by the Forest Service in a Decision Memo dated August 9, 2001.



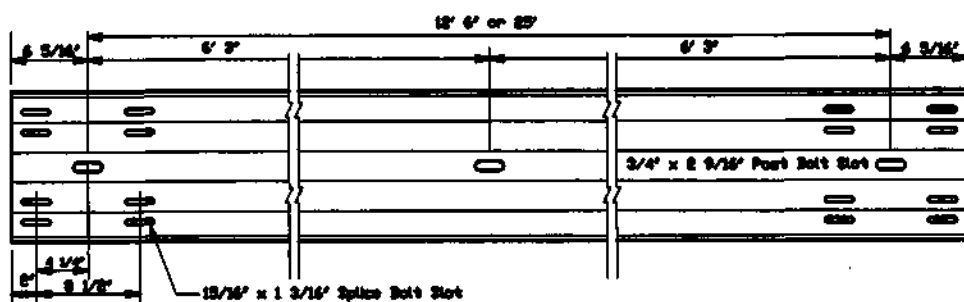
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Pacific Mine Reclamation Project

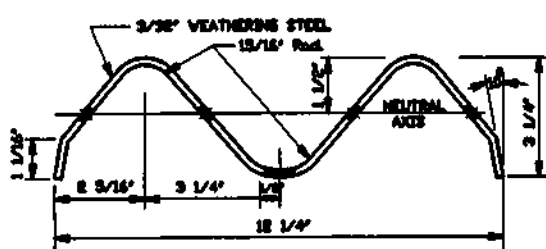
MILLER HILL TUNNEL

TROUT UNLIMITED
American Fork Canyon Sheet
Home Rivers Project 19 of 20

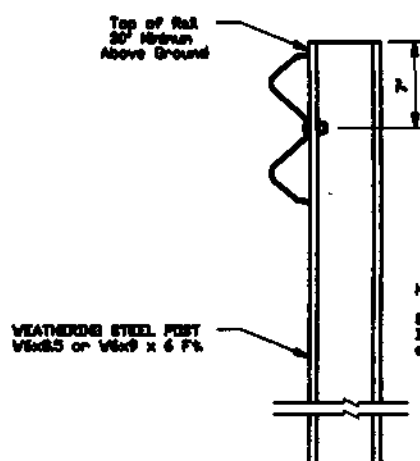
Designed By Ted V. Fitzgerald, PE
Colorado License 14917



WEATHERING STEEL GUARDRAIL PANEL

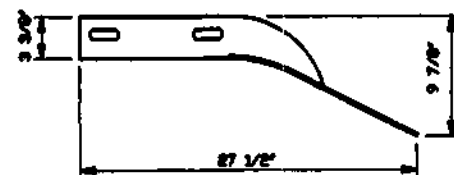


SECTION THROUGH RAIL ELEMENT

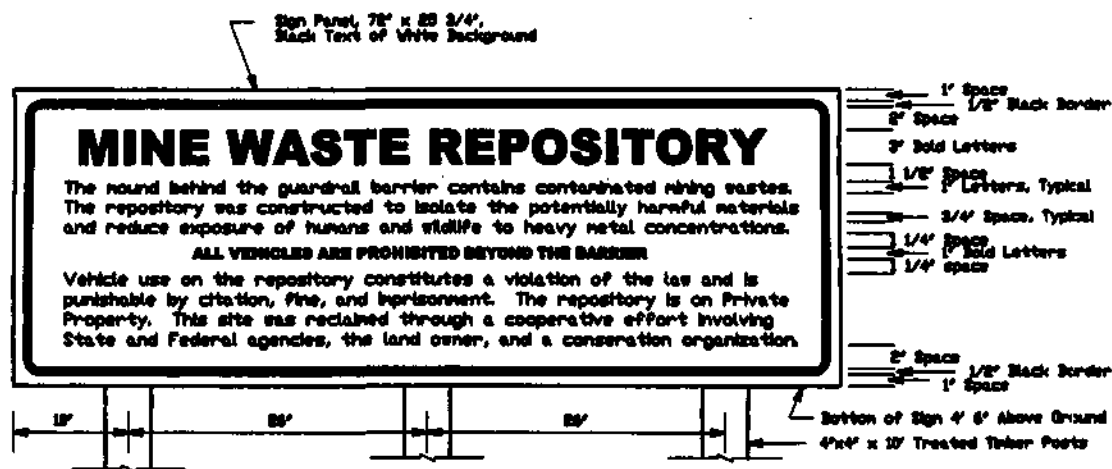
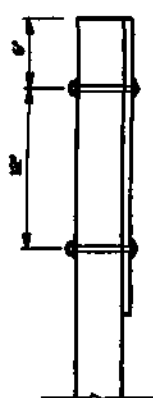


Note: Hole in Post to be 1 3/16" Dia.
Standard Guardrail Hardware To Be Used to Assemble Posts, Rails, and End Sections

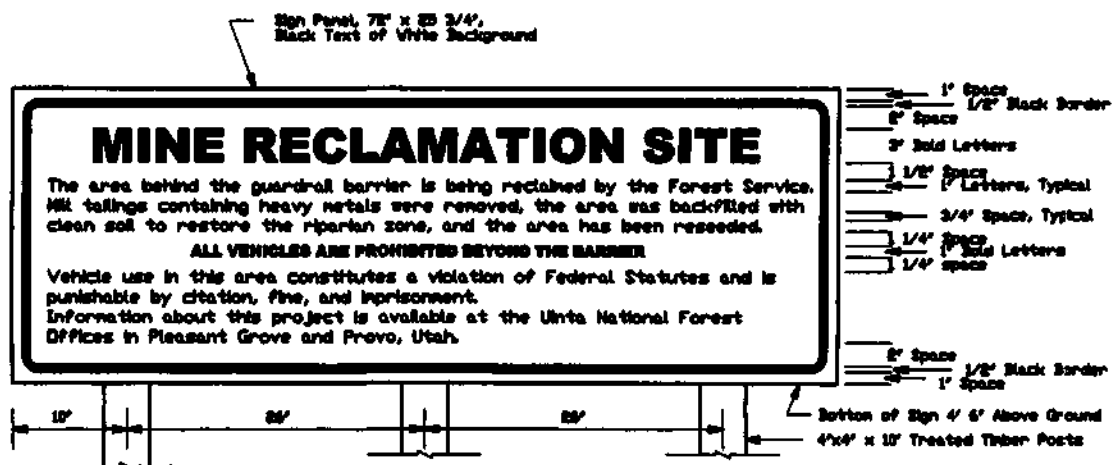
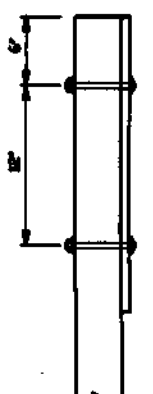
WEATHERING STEEL POST



END SECTION (FLARED)



REPOSITORY CLOSURE SIGN
(2 Each)



PACIFIC MINE CLOSURE SIGN
(2 Each)